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THE OCCUPATIONAL ASPIRATION SCALE--THEORY, STRUCTURE AND CORRELATES.
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A SCALE TO MEASURE THE LEVEL OF OCCUPATIONAL ASPIRATION (LOA) OF SECONDARY SCHOOL STUDENTS AS A PREDICTIVE TOOL IN FUTURE OCCUPATIONAL CHOICE IS PRESENTED AND EXTENSIVELY EVALUATED IN THIS MONOGRAPH. THE OCCUPATIONAL ASPIRATION SCALE IS AN EASILY ADMINISTERED INSTRUMENT WHICH FOCUSES ON IDEALISTIC AND REALISTIC EXPRESSION LEVELS AS WELL AS ON SHORT RANGE AND LONG RANGE TIME GOAL PERIODS. EMPIRICAL DATA PRESENTED SHOWS THAT THE PREDICTED CORRELATIONS IN THE LOA CONCEPT ARE BORNE OUT 80 PERCENT OF THE TIME WHILE PREDICTED NONCORRELATES ARE FOUND TRUE 70 PERCENT OF THE TIME. HYPOTHESES ABOUT THE BEHAVIOR OF LOA INCLUDE HIGH POSITIVE CORRELATIONS BETWEEN (1) LOA AND SUBSEQUENT LEVEL OF OCCUPATIONAL ACHIEVEMENT, (2) LOA AND ANY MEASURE OF SUCCESS IN SCHOOL, (3) LOA AND ANY PERSONAL ORIENTATION TENDING TO PRODUCE THE EXPERIENCE OF SUCCESS, (4) LOA AND ANY PERSONAL ORIENTATION EXPRESSING THE WILLINGNESS TO ACT INDEPENDENTLY, (5) LOA AND THE DEGREE TO WHICH THE SOCIAL STATES OF THE PERSON TENDS TO PRODUCE SUCCESS IN OCCUPATIONALLY RELATED AREAS OF BEHAVIOR, (6) LOA AND THE SUCCESS ORIENTATIONS OF THE GROUP TO WHICH THE STUDENT BELONGS, AND (7) LOA AND SELF-CONCEPTIONS CONCERNING SUCCESS OR ACHIEVEMENT ORIENTATION. IT IS FELT THAT, ALTHOUGH MORE TESTING OF ITS PREDICTIVE VALIDITY AND FURTHER SAFEGUARDS AGAINST STUDENT FAKING ARE REQUIRED, THE OCCUPATIONAL ASPIRATION SCALE IS A SATISFACTORY INSTRUMENT FOR RESEARCH ON LOA AND MAY BE ESPECIALLY USEFUL TO VOCATIONAL COUNSELORS. (DK)

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THE OCCUPATIONAL ASPIRATION SCALE

THEORY, STRUCTURE AND CORRELATES

by

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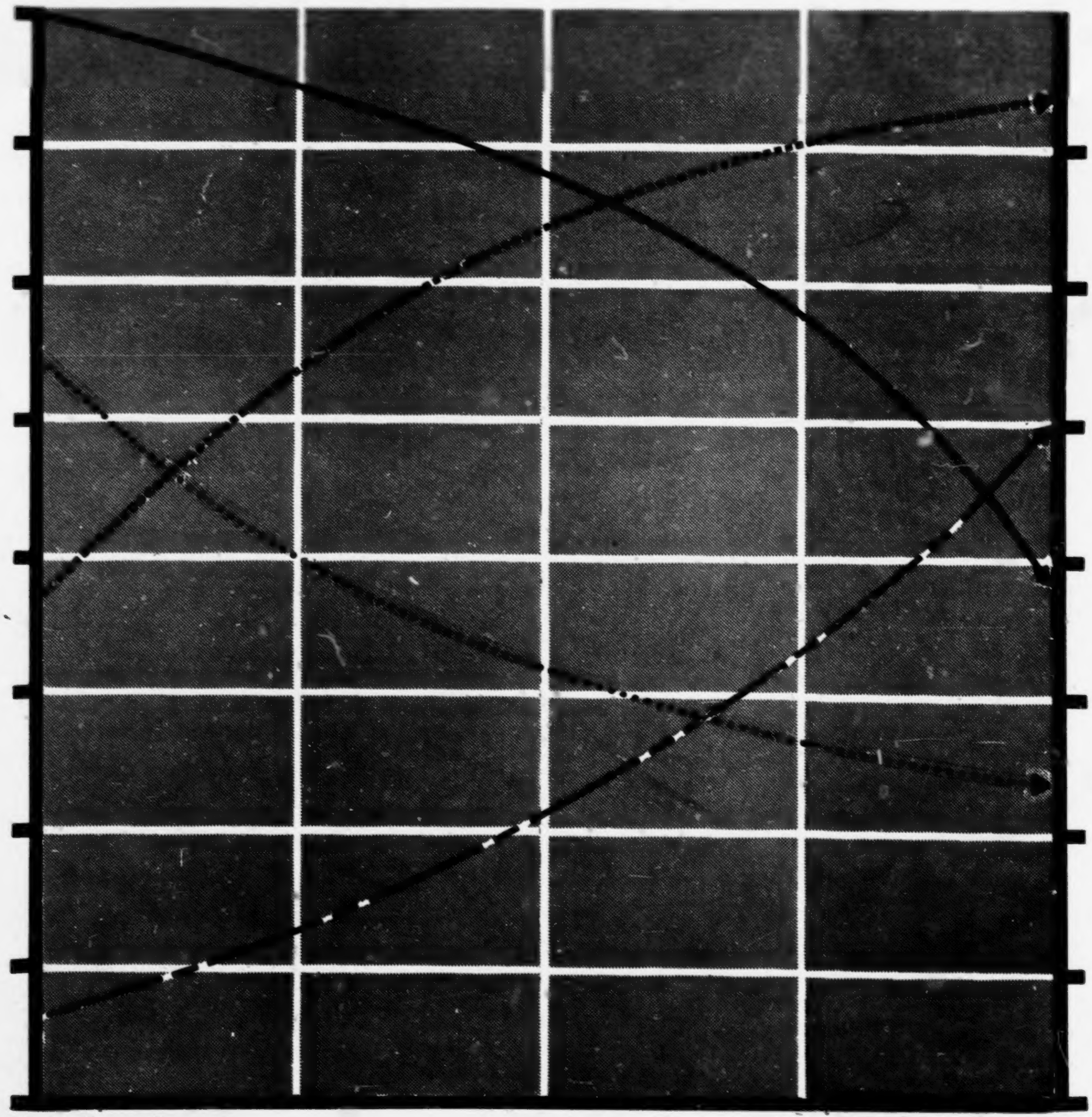

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Archibald O. Haller
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THE OCCUPATIONAL ASPIRATION SCALE:

Theory, Structure and Correlates

By ARCHIBALD O. HALLER and IRWIN W. MILLER[1]

CHAPTER I

INTRODUCTION

By now, it is a sociological commonplace that a person's occupation exerts pervasive influence on his life. It controls the amount of time he may spend freely. It provides a learning situation which controls his thoughts and emotions. It controls the character of his interaction with other people. It provides the financial base which limits and directs his style of life.

At present, we do not have a valid theory to explain and predict exactly what occupation a person will enter; we may never have. But even a small increase in the explanatory and predictive power of our knowledge about the occupational selection process may be useful. The present monograph attempts to add such to our information. It does this by applying general knowledge of levels of aspiration theory and of attitudes to the measurement of just one dimension of the occupational selection process. The dimension to which we refer is the person's level of occupational aspiration as compared to that of his fellows, which we shall call relative or differential LOA or, more frequently, simply LOA.

LOA is not a new concept. By one name or another, it goes back many years. It is a focal point for considerable sociological research concerning vertical mobility, and it has been of concern to those interested in vocational counseling. It is related to a number of the key theoretical concepts in social psychology and sociology. It is a concept which may be stated operationally, so as to permit its use as a tool for research or for counseling. Thus, for theory and for practice, LOA is a concept of considerable promise.

But its promise has remained largely unfulfilled. This is because of the unavailability of an adequate instrument to measure it. In turn, this is due partly to the lack of a clear theory which would show exactly what should be measured, and partly to the lack of a practicable way to elicit LOA responses from individuals.

Purpose of This Monograph

The objective of this monograph is to present and evaluate an instrument which is believed to be an adequate measure of LOA. By now, the outlines of the necessary theory have emerged. The monograph will show how the outlines have been drawn together to develop a reliable, valid, and simple instrument for measuring LOA. The instrument is called the Occupational Aspiration Scale (OAS) (Haller, 20).

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[1] Professor of Sociology and Anthropology, MSU, and member of technical staff, MITRE corporation, respectively. The research reported herein was performed pursuant to a contract with the United States Office of Education, Department of Health, Education and Welfare in cooperation with the Michigan State Agricultural Experiment Station.

Organization of the Monograph

The monograph is divided into eight chapters, references, and two appendices. Ensuing chapters will present the following. Chapter Two is a discussion of the concept LOA, which shows how the concept is linked to more general level of aspiration theory and to social stratification, as well as to other concepts in social psychology and sociology. Stress is laid upon a formulation of the concept of LOA which will permit specifying the operations required for measuring its referent. Chapter III will present concepts for describing LOA instruments, and use them to present a critical discussion of techniques by which LOA has been measured in the past. Chapter IV will present a series of hypotheses concerning the correlation of LOA with other variables, and will present tests of these hypotheses based on extensive data, much of it previously unpublished. This analysis will show that LOA behaves predictably, confirming the belief that a practicable instrument for measuring it has considerable potential usefulness. Chapter V will describe the OAS, an instrument designed in terms of the discussions presented in Chapters II and III. Chapter VI will present the results of analyses of the reliability and internal evidences of the validity of the OAS. Chapter VII will present a study of the correlates of the OAS, performed in a way which is parallel to Chapter IV and which also compares the correlation of the OAS with the best of previous LOA instruments.

Appendix I presents the OAS forms, OAS standardization data, the OAS scoring key, correlations of the OAS with other variables, and data on another measure of LOA. Appendix II presents unpublished forms used in the research upon which most of the data in the monograph are based.

CHAPTER II

CONCEPTUAL ANALYSIS OF LEVEL OF OCCUPATIONAL ASPIRATION

The purpose of this chapter is to examine the general concept "level of aspiration," to show its implications for LOA, and to show the various social-psychological concepts related to LOA.

The General Concept "Level of Aspiration"

There are a number of important works on the general concept of level of aspiration. These include Lurie (35), Gardner (16), Lewin et al. (33), Irwin (28), and Deutsch (11). As it is presented in these works, the concept level of aspiration includes several elements. At perhaps the most fundamental level, the term indicates that one or more persons are oriented toward a goal. But it is more than this, in that both the goal and the person's orientations to it are complex. (1) The person's goal is a selection of one among the alternative behavior levels that are possible with respect to an object. These alternative behavior levels must vary in the degree to which they are difficult to achieve. That is the alternatives are ranked in a continuum of difficulty. (2) The person's orientation is variable in two ways, one of which has received considerable attention in the literature, and the other has been to a large extent ignored. (2a) The person's orientation is variable in that its central tendency may lie at any point or limited range of points along the continuum of difficulty. The central tendency of the person's orientation is the point or limited range of points which has the highest valence for him. This is the person's level of aspiration. The term differential level of aspiration logically implies variation in the point of valence when it is estimated at different times on the same person, or at the same o. different times on different persons. In this monograph, the term is restricted to variations among persons. (Most of the time we have used a short form, levels of aspiration or levels of occupational aspiration. This really means differential levels of aspiration among persons.) (2b) The person's orientation is variable in a second way. The central tendency may vary in amount of dispersion, the degree to which it is concentrated at a single point, or varies over a range of points on the continuum of difficulty. Although its possibilities have not been fully exploited, the dispersion aspect has been recognized in the literature by many references to the different types of levels. Those who study level of aspiration speak variously of preference levels versus expectation levels plan levels versus "aspiration" levels, ideal versus action goals, long-range versus short-range goals, etc.

It appears to the writers that all of these types of levels or goals have one meaning in common: almost all writers agree that each person has a range of goal-levels within which the valences of all particular goal-levels is relatively high; few view the person's level of aspiration as being concentrated on a single point. Among those who recognize the existence of a range rather than a point, there are two different emphases. Some stress variations in the level of aspiration at one time. These writers use terms such as preference versus expectation, and the like. Others stress variations in the level of aspiration at different times.[2] These writers use terms such as short-range versus long-range.

Clearly, in perhaps most of the areas where the level of aspiration concept is appropriate, the individual's level of aspiration may vary in each way. He may have a range of aspirations, with rough upper and lower boundaries, and the whole range may vary according to whether he is concerned with his goals for the immediate future or for some more distant time. These two aspects of level of aspiration differ from each other, and they are equally important. People often distinguish between what they hope they can do and what they are sure they can do, and between their short and long-range hopes and expectations.

Both aspects will be used in this monograph. A terminology to express these variables follows: Operational definitions designed to estimate the points which bound the range of a person's level of aspiration at any one time will be called expression levels. Estimates of the lower and upper boundaries will be called the realistic and idealistic expression levels, respectively. Operational definitions designed to estimate a person's level of aspiration at different times will be referred to as goal-periods. Estimates for future times that are near or distant will be called short-range and long-range goal-periods, respectively.[3]

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[2] There is another distinction often thought to be of importance. This is the success-failure dimension. In the resultant weighted valence (RWV) model, the "valences" and "subjective probabilities" of success and failure are combined to produce an RWV score for each level of goal difficulty. The writers believe that for occupational behavior, the utility of this distinction and the weighting of goal valences which flows from it has yet to be demonstrated (Alexander, 1). For this reason, it is not discussed further in the present monograph. Perhaps future research will show it to be useful.

[3] It will be noted that the distance between expression levels and the distance between time are both variable. The full implications of this have not been explored in the literature, although there are many suggestions that these variations may be important. Quite different behaviors, (in occupational and educational areas of behavior, for example) may occur when expression-levels are widely-spread rather than narrowly concentrated, when realistic expression-levels are higher than idealistic levels, when short-range and long-range goals are close together rather than far apart. Also, if we can believe the speculative literature, the child's expression-levels are widely separated. At what age do expression-levels tend to converge on a point? Research should be conducted to answer these and a number of other questions.

The Special Concept of "Level of Occupational Aspiration"

The concept "level of occupational aspiration" (LOA) is a special instance of the more general concept. It differs from the general concept only in that it takes as its object the occupational hierarchy, and that the continuum of difficulty consists of the various levels along the hierarchy. The particular dimension which is most appropriate for ordering occupations in a hierarchy is a matter of considerable disagreement in the literature, as is the most appropriate technique for measuring the dimension. These issues will be discussed separately.

Many different dimensions have been proposed as the most adequate for ordering occupations in a hierarchy. These have been reviewed by Caplow (4), Davies (9), and Super (59). They include income, intelligence, interests, special skills, required education, personality, and prestige (or societal evaluation). There is no readily observable hierarchy in two of the above, interests and personality; if various interests or "elements" of personality are arranged hierarchically, the hierarchy is based on one of the others.

Of the above dimensions, those which are the most obviously hierarchical, such as average income per occupation and average prestige per occupation, average intelligence per occupation, and average education per occupation are probably very highly inter-correlated. This assumption may be true or false; so far as the writers know there are no published data testing it. If it is true, it will make little difference which of several variables is selected to be the hierarchical dimension of LOA. If it is false, then the decision as to which to use must be based on other criteria. In this case, one may turn to sociological theory of stratification. Stratification theorists generally agree that differential societal evaluation of occupations, or occupational prestige, is the most adequate way of placing them in a hierarchy (Kahl, 29). We conclude that the continuum of difficulty of LOA consists of a hierarchical dimension of occupations, and that occupational prestige is an appropriate way to arrange occupations in a hierarchy. It is at least as adequate to serve this purpose as are other hierarchical dimensions; and it may even be better.

There are many studies of the differential prestige of occupations. Those available when his volume was published were reviewed by Davies (9); later studies, including an especially important one by Inkeles and Rossi (25), are reviewed by Ramsey and Smith (44). Generally, these studies show that similar occupational titles have nearly equivalent ranks among various industrial or Westernized societies, and that these ranks have been relatively stable (at least within the United States) for the last generation.

Since differential social evaluation is the basis for rank-ordering occupations according to prestige, it follows that the best technique for measuring the variable is that one which yields the rankings assigned to the widest variety of occupations by all elements of the total population of a society. For the United States, the study producing the most complete information on the occupational hierarchy was done by the National Opinion Research Center (NORC) in 1947 (41). It was done by means of a quota-controlled national sample of adults (age 14 and over) numbering 2,920 persons. In this study, the respondents rated each of 90 occupations, representing all levels from day-labor to top business and professional, according to a five-point scale of "general standing".[4] The respondents' estimates of an occupation were then averaged, and the average scores were placed in rank-order. Thus, NORC scores (also called North-Hatt scores) are the best available means for operationalizing the continuum of difficulty of LOA.

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[4] The exact question-wording was: For each job mentioned, please pick out the statement that best gives your own personal opinion of the general standing that such a job has.

1. Excellent standing
2. Good standing
3. Average standing
4. Somewhat below average standing
5. Poor standing

x. I don't know where to place that one.

In summary, the LOA concept is logically a special instance of the concept of level of aspiration. Its special nature consists only in that its continuum of difficulty is the occupational hierarchy. It may be that any adequate measure of dimensions resulting in a hierarchy of occupations produces the same rank-ordering of occupations, but this is not known to be true. In any case, occupational prestige is at least one adequate dimension. The best measure of this for American society, and the one we shall use as the basis for the Occupational Aspiration Scale described in this monograph and will use to evaluate other LOA instruments is the NORC ranking.

Concepts and Research Areas Related to LOA

Concepts related to LOA

Modern behavioral science seems to be in the interesting position of having a large number of traditions that are somewhat isolated from each other, but which have quite similar content. Each uses somewhat different terms, but there is much agreement as to central concepts. The basic similarity of many concepts, however, is somewhat obscured by their differing names. Others are different but logically related to each other. Our purpose in this section is to sketch the relationships of LOA to a number of the more important related concepts and research areas drawn from a variety of traditions. It should be emphasized that we have no intention of trying to place LOA in any single unified theoretical system. We have already shown that LOA is a special instance of level of aspiration.

We shall try to show below that LOA may also be interpreted as an attitude. The concept of attitude has found rather wide agreement in meaning, at least operationally, throughout the behavioral sciences. Because LOA is, we believe, an attitude, a concept shared by all behavioral "systems," it is not necessary to tie LOA with any one point of view. But it is useful to show, as we mentioned above and as we shall spell out below, why LOA may be considered to be an attitude, and to show wherein it parallels or fits logically with other concepts and research areas.

Like all attitudes, LOA is a personal orientation to action with respect to a social object. As an orientation to action, it represents the person's conception of and desire for a future state (Peak, 43, Edwards, 14). The social object is the occupational structure, with particular occupations ranked from highest to lowest in terms of prestige. A person's LOA thus stands for his orientation to action with respect to a point or a limited range of points on the occupational prestige hierarchy. But one question which may be raised is whether a point in or range of the occupational prestige hierarchy may be considered to be a real object. This may be answered by noting an old principle in the behavioral sciences which holds that when people define something as real, it is real in its consequences (Merton, 38, pp. 421 ff.). Thus if people act as though a concept has reality, it in fact has a certain reality.

If people act as though they refer their behavior to something we call an occupational prestige hierarchy, then the hierarchy is an object of logical status equal to that of other objects. Considerable evidence shows that they do act in this way. LOA, then, has a general object which is the entire occupational prestige range. It also has a particular object which is the person's own point or limited range of orientation. Evidences concerning the shared definitions of occupational prestige are many. As we have noted earlier, several recent studies show that occupations are differentially ranked and that people in urban-industrial social systems have relatively similar prestige evaluations of translatable occupational titles. Inasmuch as these occupational prestige ratings are based upon persons' relative rankings of particular occupations, it follows that any particular point or rank can also be an object.

LOA differs from most attitudes, however, in that its general object, the occupational prestige hierarchy, contains all possible alternative specific objects of the attitude, and in that these alternatives are rank-ordered. Ordinarily, orientations are ranked, such as from "favorable" to "unfavorable", toward only one object. LOA's general object is--or specific objects are--as variable as is LOA's orientation aspect. Here, too, an objection may be raised. It might be argued that LOA is not an attitude; that in fact LOA differs from an attitude in that the latter's object is constant while its orientation aspect is variable, while the former's object is variable while its orientation aspect is constant. But LOA's orientation is not really as constant as it may seem; to choose one level as relatively desirable is to imply that other levels are relatively undesirable.

LOA is closely related to the concept of goal. A goal may be considered to be a special kind of object toward which the person has a favorable attitude. Attitudes may vary toward an object conceived as a goal, but only in the degree to which they are favorable. They are not unfavorable. But LOA's particular objects are more complex in that they are alternatives. The particular one chosen may be considered a goal, but the rest of the alternatives are not necessarily viewed even as substitute goals by any one person. He will reject some altogether. Only the particular range to which the person is oriented may be considered to be a goal for him.

The concept "value" is used in at least two different ways. For one, it is sometimes used to indicate that which has positive affect for the person. Since a person's LOA is a desired level, it may be considered to be a value for him in this sense of the term. LOA is also related to the concept of personal value orientation. In the writers' opinion, the value orientation of the person may be considered to be his attitude toward a widely accepted cultural value. A cultural value, in turn, may be considered to be a societally-defined maxim holding that a certain behavior or object is inherently good. Insofar as high occupational prestige levels are cultural values, then a person's LOA may be considered to be his value orientation with respect to the higher levels.

In addition, LOA bears a resemblance to the concept of the plan when the latter is used as a noun. Generally, a plan refers to a more or less clearly conceptualized course of action, perhaps involving many constituent acts, each with its sub-goals, which is instrumental in realizing a goal. Hence an occupational plan is held to be a conceptualized course of action thought by the person to be instrumental in entering an occupation. Similarly, a person may desire to achieve a certain occupational prestige level, and may map out a course of action for doing so. This would be a plan for achieving an LOA. Naturally, a number of alternative plans may be formulated for realizing the person's LOA; some of these may be exceedingly complex. By way of an example, plans could include working to earn money to go to college to get a good job.

Motivation is a concept which is used in many ways. LOA bears a resemblance to some, but not all, of these. Perhaps the two uses of motivation most nearly akin to LOA are the "sociogenic motive" of the Sherifs (51) and the "$\bar{n}$-achievement" of Murray (40) and Mc Clelland *et al.* (36). The former is really another use of the term attitude. In this formulation, attitudes toward social objects are sociogenic motives. They are held to be motives because it is believed that attitudes serve to mobilize and direct energy into action with respect to their objects, thus providing motive power for action; they are held to be sociogenic because attitudes are held to be learned in interaction with other persons. Since LOA is an attitude variable, it may be considered to be a sociogenic motive in the Sherifs' (51) sense of the term.

Mc Clelland, et al. (36), Rosen (46), and others have attempted to show how ethnic and religious traditions, long held to be related to economic rationality in Western Europe and North America, are manifested first in child training practices and later in the person's desire for excellence in performance. These workers held that Murray's (40) n-achievement--a non-conscious tendency to behave in accord with high internally-set standards--influences all aspects of performance. In particular, high n-achievement is held to influence behavior at work and in training for work. Evidently then, persons who are high in n-achievement would be expected to learn and to put into action more effective work-practices than others do, and for this reason it would be expected that n-achievement should influence prestige levels of occupational achievement, and levels of educational achievement as well. To the degree that it has this objective, it serves some of the same aims as LOA does. It differs from LOA, however, in at least two related ways. Like other attitudes, LOA assumes that the occupational prestige hierarchy and specific ranges along it become objects to which the person relates himself either positively or negatively. But n-achievement apparently has no particular object, being concerned only with excellence of performance applying to many objects.

Secondly, since n-achievement refers to the quality of performance, rather than to the occupational hierarchy, it should follow that it is most effective as a predictor of the excellence of work in whatever occupation the person finds himself, whether it is shining shoes, or making foreign policy decisions. LOA, of course, should be most effective as a predictor of the prestige level of the occupation the person takes. It is, therefore, doubtful that n-achievement would be particularly highly correlated with occupational prestige level, or that LOA would be particularly highly correlated with the quality of performance in a particular occupation. But this is not to say that they should be uncorrelated. Others usually have a stake in, and a degree of control over, a person's occupational career. It is doubtful that many persons of low n-achievement would be permitted to attain high prestige occupations, and it is likely that a disproportionate number of those with high n-achievement would be advanced to higher positions. The connection between quality of performance--and, therefore, n-achievement--and levels of occupational achievement is probably visible to most persons. For this reason, n-achievement and LOA should each have a moderate and positive correlation with the behavior appropriate to the other. This has not been tested to date.

LOA is evidently related to concepts of self and role and through these to a third type of motivation. Probably most people in complex societies actually know very little detail about the role-behaviors associated with most occupations. Nevertheless, they appear to believe they know the styles of life--an important aspect of role behavior--characteristic of each occupational prestige level. Clearly, this means that the person must view some levels as more appropriate for himself than others. This implies that to the degree that the person has a unitary LOA, he has a conception of himself in relation to the styles of life he imputes to the various levels of the occupational hierarchy. Hence LOA may be interpreted in terms of the person's self-concepts and in terms of his conception of certain roles he anticipates playing or desires to play sometime in his future.

This leads to two further considerations. First, Foote holds that self-conceptions direct energy toward action viewed as fulfilling the self-conception (Foote, 15). Thus, he concludes that self-conceptions have motivation properties. If this is the case, then LOA may be interpreted as a third type of motivational concept. Second, Merton (37) and Becker and Straus (3), have pointed out that learning and identification with a role often begins long before the person formally begins to play the role. This has been called anticipatory socialization. Because LOA has been interpreted as an anticipated or desired future role, it may also be interpreted as an aspect of anticipatory socialization. (The fact that many fail to achieve their LOA's while a few others achieve higher positions than they expected or wanted does not deny the fact of LOA's status as a type of anticipatory socialization. Indeed, this creates problems which themselves are worthy of study.)

As we have seen, LOA is an attitude which involves conception of the self in relation to a particular level of the occupational prestige hierarchy. But it is likely that this is a more abstract notion than people really have. More accurately, the individual's conceptions of the others he uses as referents doubtless consists of images of people who have characteristic styles of life. When a person uses a group as a reference point from which he evaluates himself or as a standard to direct his behavior, the group is called a reference group (Merton, 38, pp. 225-386). Evidently LOA is closely related to the reference group concept.

Research Areas Relating to LOA

From the preceding discussions it is clear that LOA is a part of attitude research in social psychology. It is clear, too, that it is closely related to stratification in sociology, for the occupational hierarchy is perhaps the most important facet of modern stratification (Kahl, 29). It may also be interpreted as an aspect of other research areas. One of these is the area called "social structure and personality." Most research concerning social structure and personality has been concerned with the impact of social structure on personality. But, as Inkeles (26) has shown, this conception is unnecessarily limited. The personality orientations which operate to select persons into different segments of the total social structure must surely be considered an aspect of the interdependence of social structure and personality. While the occupational prestige hierarchy is by no means the only social structural variable worthy of study, it is one of the most important in urban-industrial societies. Similarly LOA is only one among many personality orientation variables, but it is important insofar as it controls or even merely predicts levels of occupational prestige achievement in urban-industrial societies. Since LOA is a personality orientation which appears to influence the prestige level of attainment in the occupational hierarchy, it is logically part of the area of social structure and personality.

Social mobility research is the name given to the sociological area of inquiry which attempts to measure, explain, and predict downward and upward movement of persons, families or other sub-systems in the stratification order of total social systems. To the extent that studies of LOA assist in such measurement, explanation, or prediction, the concept LOA must be considered a contributor to the area of social mobility (Lipset and Bendix, 34).

Summary of Concepts and Research Areas Related to LOA

We have tried to sketch the relations of LOA to a variety of concepts and research areas. It is most closely related to attitudes and to level of aspiration. It also has affinities to the concepts of plan, value, self, role, motive, and anticipatory socialization. In application, it is logically a central focus in attitude research, stratification research, social structure and personality, and mobility research. We conclude that LOA is a concept deeply embedded in social psychology, and having wide application in sociological and social psychological research. Its possible application in counseling will be noted in a later chapter.

CHAPTER III

TECHNIQUES FOR MEASURING LEVEL OF OCCUPATIONAL ASPIRATION

In this chapter we shall describe the most widely or most successfully used techniques for measuring LOA. The description is based on a classification of techniques. In turn the classification is taken from the general level of aspiration concept, from the application of the later to LOA, and from considerations concerning psychological measurement. In the first section, we shall describe the basic terms of the classification and the consequences of each for the measurement of LOA. In the second section, we shall describe briefly the better known LOA techniques, and we shall evaluate each in terms of the classification system. The two existing commercial techniques--techniques which are produced for the market--will be described first and others will be described later.

A Classification of LOA Techniques

Basic Terms

The purpose of this section is to define the basic terms used below to describe and evaluate the different techniques presently available to measure LOA.

(A) Stimulus question. This term refers to any test item or question which is designed to elicit a measurable LOA response.

(B) Direct vs. indirect techniques. These terms distinguish LOA instruments eliciting a response which can be assigned a score equivalent to the occupation's relative standing in the occupational hierarchy (direct techniques), from those eliciting responses which are assigned scores based on other criteria (e.g., interests) which are assumed to be related to the occupational hierarchy (indirect techniques).

(C) Continuous vs. categorical techniques for selecting items. These terms distinguish between LOA instruments the items of which are selected to discriminate along many levels of the occupational hierarchy (continuous), and LOA instruments the items of which are selected to discriminate between an occupational hierarchy which has only two or three gross levels (categorical).

(D) Single- vs. multiple-item design techniques. These terms refer to the number of stimulus questions used to elicit the person's LOA.

(E) Free response vs. structured response techniques. These terms distinguish among LOA instruments based on responses to open-ended questions (free response), and questions with pre-determined response alternatives (structured response).

(F) Response alternatives. This term applies only to structured response techniques. It refers to the battery of possible responses presented to the person. From among these, he must choose the one which he believes to be most nearly appropriate for him.

(G) Expression levels. Defined in Chapter II, this refers to the stimulus question wording eliciting the two response levels of the level of aspiration model, realistic and idealistic.

(H) Time-dimension periods. Also defined in Chapter II, this term refers to the stimulus question wording eliciting long-range and short-range response levels. Regarding the LOA of youth, these terms refer to points in their work-careers, short-range indicating estimates for the time when they first take serious jobs and long-range indicating estimates for a time after they have become established in their occupations.

(I) Complete vs. incomplete techniques. These terms refer to the degree to which the stimulus questions of a technique incorporate all aspects of the general level of aspiration model. A complete technique includes stimulus questions tapping each expression level and each time-dimension period. Incomplete techniques lack one or more of these aspects.

(J) Balanced vs. unbalanced techniques. These terms refer to the equality of the numbers of stimulus questions concerning each expression level and each time-dimension period. Techniques in which any one level and any one period are represented in stimulus questions as often as any other level and period are called balanced techniques. All others are unbalanced. It follows that only complete techniques can be balanced.

Consequences of Differences Among the Techniques

The key terms for distinguishing among techniques are the bi-polar concepts listed above. These are (B) direct vs. indirect techniques, (C) techniques based on continuous vs. categorical item selection methods, (D) single- vs. multiple-item techniques, (E) free vs. restricted response techniques, (I) complete vs. incomplete techniques, and (J) balanced vs. unbalanced techniques.

1. (B) Neither direct nor indirect techniques are inherently effective or ineffective. But in practice, direct techniques are more effective because they are explicitly derived from the occupational hierarchy; their authors understand the variable they are trying to measure. For this reason, they have a clear relationship to LOA's continuum of difficulty. Indirect techniques could be based on direct techniques. If they are adequately designed--i.e., if they provide a method for assigning scores which are clearly related to the continuum of difficulty--they would perhaps be better than their direct counterparts, for an indirect technique can prevent certain types of faking. Direct techniques are subject to this difficulty because they permit the subject to choose any occupation that he wants to choose or that he thinks a tester wants him to choose. But to date, indirect techniques are based either on interests which have been found to be empirically related to gross categories of the occupational hierarchy (such as the Occupational Level--OL--Scale of The Strong Vocational Interest Blank; Strong, 55) or have apparently only been thought to be related to gross categories of the occupational hierarchy (such as the Level of Interest--LI--scale of the Lee-Thorpe Occupational Interest Inventory; Lee and Thorpe, 32). To date, indirect techniques lack a clear relationship to an adequate measurement of LOA's continuum of difficulty.

2. (C) Gross categorical techniques for selecting items are clearly less adequate than are continuous techniques. This is because crude categories fail to detect real differences along the occupational hierarchy. At least part of this insensitivity is doubtless reflected in a corresponding insensitivity to differences in LOA. On the other hand, continuous techniques more accurately measure differences along the occupational hierarchy, and this accuracy is doubtless true of the measurement of LOA.

3. (D) Multiple-item techniques are probably more effective than single item because they make complete and balanced designs possible, they yield an LOA score based on more than one estimate, and they permit tests of hypotheses concerning internal consistency and internal structure. All of the above are precluded by single item techniques.

4. (E) Free response and structured response techniques each have their advantages and disadvantages. Free response techniques permit the subject to give a response which is exactly the occupation he wishes to choose; structured response techniques may not present any alternatives which are especially relevant to the respondent. However, free response techniques have some major practical drawbacks. For one, many respondents fail to respond in terms which have a hierarchical occupational referent (for example, "get a job," "housewife," "go to work," etc.). For another, many hierarchical responses are impossible to code into specific LOA scores (for example, "business-man," "salesman," "engineer"). These difficulties result in a high proportion of persons whose LOA's are unknown. They also mean that the free response techniques, though easy to administer, are hard to code. Structured response techniques overcome all of these difficulties.

5. (I) Neither the complete nor the incomplete type of technique is necessarily the more adequate. They differ in that complete techniques permit LOA measurement on all aspects of the concept, while incomplete techniques do not. If the distinction between different expression levels and different time-dimension periods has any functional significance, complete techniques will detect it and will therefore be more adequate. But if it does not have functional significance, either type of technique will work satisfactorily.

6. (J) Balanced techniques are not inherently better than unbalanced. But if complete techniques are required, then they should be balanced. This is because unbalanced techniques will tend to under-estimate (or over-estimate) the contribution to LOA which is made by the under-represented (or over-represented) aspect.

The Classification System

LOA techniques may be classified and described accurately enough for most purposes by means of the six bi-polar concepts listed above. That is, any one technique may be described as direct or indirect, categorical or continuous, multiple or single-item, free response or structured response, complete or incomplete, or balanced or unbalanced. All techniques known to the writers may be described in terms of only a few of the 64 possible combinations which result from the classification. More precisely, excepting the OAS (which will be described later) all existing techniques appear to be classifiable into three types. These are (1) indirect, categorical, multiple-item, restricted response, incomplete, and unbalanced; (2) direct, continuous, single-item, free-response, incomplete, and unbalanced; and (3) direct, continuous, multiple-item, free-response, incomplete, and unbalanced.

Present Techniques

The following discussion will briefly review the most important LOA instruments in terms of the above concepts. Detailed descriptions, if they are available, may be found in the literature cited. We shall present first the instruments which are copyrighted and are available on the market, and second those which are not copyrighted and are available at no charge to the user.

Commercial LOA Instruments

There are apparently only two LOA instruments which are marketed. These are Strong's (55) Occupational Level (OL) Scale and the Lee-Thorpe (32) Level of Interest (LI) Scale. Both are minor sections of more inclusive instruments designed to measure areas of occupational interest. These tests measure the extent to which an individual's interests are similar to, or different from, interests of persons who are known to be successful in certain occupational areas. Both may be classed as indirect, categorical, multiple-item, structured response, incomplete, and unbalanced techniques.

The OL scale is part of the Strong Vocational Interest Blank (SVIB). The SVIB, as a whole, is described quite well by Super (59), Darley and Hagenau (8), and Barnett et al. (2) and need not be described in detail here. Briefly, persons responding to it are asked to check Like-Indifferent-Dislike (L-I-D) for a series of occupational titles, school subjects, amusements, activities, and characteristics of people. In addition, the respondent rates himself on a list of interests, preferences, personal abilities, and characteristics. The OL scores are then derived from interest scores in the manner described by Strong:

> The occupational level (OL) scale was developed by identifying items which differentiated unskilled workers from the men-in-general group. A low score thus indicates interests similar to those of manual laborers; a high score means the person has responded to the items the way most business and professional men do.

Strong (57, p. 127) presents the following reliability data for the OL scale among students first tested when in college:

Procedure	Sample	Reliability
Test--retest (5 years)	Seniors	.71
Test--retest (19 years)	Freshmen	.53
Test--retest (22 years)	Seniors	.57
Odd--even	--	.87

Two types of direct evidence suggest that the validity of the OL scale is not high. (1) Strong states that the predictive efficiency of the OL scale (in terms of occupational achievement) is poor when compared with predictions based on interest areas. (2) Lee and Thorpe (31) find a quite low correlation of +.13 between Strong's OL scale and the LI scale of their Occupational Interest Inventory (OII) on a sample of sixty veterans. Moreover, the indirect evidence presented in the next chapter seems to show that the OL scale is not one of the more accurate measures of LOA.

The LI Scale is described in a manual (Lee & Thorpe, 31). The mechanics used in the OII to obtain LI scores are different from those of the SVIB. The OII has a separate section for the purpose of measuring level of interest. This section is made up of 30 forced-choice triads, five triads for each of the six major interest fields assessed by the OII. Each triad consists of three statements concerning activities in the same interest area but differing with respect to the degree of skill involved. For example, the instructions and one triad from the LI section are as follows:

> Below you will find three activities under each number. You are to choose the one you prefer to do of the three in each group. Indicate your choice by marking the letter preceding the activity.
>
> 1
>
> B1. Take temperatures, give blood tests, and administer hypodermics.
>
> C1. Treat wounds, perform surgical operations, and help sick people get well.
>
> A1. Do haircutting, hairdressing, manicuring, or shampooing.

The alternatives are rated: A=low, B=average, C=high level of interest. Lee and Thorpe (31) report a test-retest (one week interval) reliability coefficient of +.74 based on a sample of ninety-three twelfth-grade male students. The direct evidence on the validity of this instrument is not impressive. (1) As we have seen, it has a low correlation (r = +.13) on the OL test. (2) Stefflre (52) has shown that it is positively correlated with the prestige level of occupational choices; but the amount of correlation is evidently quite low. As with the OL scale, the indirect evidence presented in the next chapter suggests that it is among the poorer LOA instruments.

In summary, both instruments have the advantages characteristic of multiple-item structured response instruments, and the disadvantages which are characteristic of indirect, categorical, incomplete and unbalanced instruments. Because of their multiple-item construction, the total LOA score rests on several different estimates; they probably, therefore, are more reliable than they might be otherwise. Because of the structured responses, most persons have little difficulty giving answers which may be scored, and scoring is quite simply and rapidly done. On the other hand, the indirect and categorical basis of construction means that their relationship to LOA's continuum of difficulty is obscure. Also, because they are incomplete and unbalanced, there is no way of knowing whether they are adequate measures of the various aspects of LOA. There is little empirical evidence available on them; what there is suggests that their validity is not very high, although their reliability appears to be quite high. They are easy to administer in group situations, are easy to score, and are readily available at a low market price.

Non-Commercial LOA Instruments

A number of LOA instruments have been designed for purposes of particular research projects. These fit into two of the types noted above. Most such instruments are direct, continuous, single-item, free-response, incomplete and unbalanced. There are quite a few of these in use; we shall not attempt to list all of them, but will present several for purposes of illustration. (It should be recognized that some writers seem to consider the stimulus question a trivial matter, for it is not always reported.) The following are among those which have appeared in the literature:

1. "What have you often thought you would like to do for a living?" (Lurie, 35).

2. "If you had every opportunity to follow any career you wished but still had to work for a living, what occupation would you choose?" (Stubbins, 58).

3. "If you could have any job you wanted, as an adult, what would you like to do?" (Barnett, et al., 2).

4. Asked after each of several questions on educational plans: "After you (quit high school, complete high school, graduate from college) what kind of work do you intend to do?" (Stephenson, 53).

5. "In the above question you have indicated what you actually plan to do. However, often times we have to plan to do things we would not do if circumstances were different. Therefore the following question is asked: If you could do what you really wanted to do, what would you do?" (Stephenson, 53).

The typing of these is based on the following observations: (1) Each question is designed to elicit an occupational title as its response; this is why each is classified as direct. (2) Although it is not evident in the stimulus questions, each technique is classified as continuous because the responses to each are assigned scores from a continuous scale, usually but not always of occupational prestige.[4a] (3) Again, each is classed as single-item because only one stimulus question is used to elicit responses resulting in its LOA score; this is as true for Stephenson's two questions as it is for those of others because he uses each question to arrive at a different LOA score. (4) Since open-ended questions are used, the techniques are classed as free-response. (5) The techniques are clearly incomplete because none attempts to assess each expression level at various time-dimension periods.

Lurie (35) specifies neither a time-dimension period nor an expression level. Stubbins (58) specifies one expression level but no time-dimension period. Barnett, et. al, (2) specify one expression level and no distinct time-dimension period. Each of Stephenson's (53) questions elicits a response at a different expression level, (4 and 5 above) and his first question (4 above) specifies a time-dimension period. But he uses each question as a different measure of LOA. Hence, the first question elicits one expression level and one time-dimension period, and the other elicits one expression level and no time-dimension period. (6) Inasmuch as a balanced technique requires equal representation of stimulus questions eliciting each expression level and each time-dimension period, it is clear that all of the above are unbalanced.

The reliability and validity of these techniques are not reported, and are probably difficult to assess. Their users seem to have had at least a fair degree of success with them, however. All are difficult to assign scores, and the scoring probably has many errors, at least in some techniques. Finally, many respondents do not give answers in codable terms.

Another technique, applied with slight modifications by Sewell and Haller and by Haller in previously unpublished research to be described in the next chapter, makes use of a direct, continuous, multiple-item, free-response, incomplete and unbalanced design. Briefly, it is based on The National Opinion Research Center's (NORC, 41) prestige ratings--also called North-Hatt scores--of responses to four stimulus questions.[5] These follow:

[4a] Many research workers have later collapsed the responses to these techniques into dichotomous or trichotomous classes for analysis. But the basic instrument is still classifiable as continuous.

1 "The occupations which I have thought about going into are:

a.____

b.____

c.____

d.____."

2 "The occupation that I plan to follow is: ____________________."

3 "If I were absolutely free to go into any kind of work I wanted my choice would be: ______________________________."

4 "The type of work I would like to be doing 10 years from now is:[6]

____

____."

The responses are treated in the following way: 1. The prestige score (an estimate by judges, based on the known NORC score of apparently similar occupations) of the highest occupational choice mentioned in any question is used as an estimate of the idealistic expression level. 2. The prestige score of the lowest occupational choice mentioned in any question is used as an estimate of the realistic expression level. 3. The prestige score of the occupational plan, elicited in response to question 2, is used as an estimate of the realistic expression level. 4. The prestige score of the free occupational choice, elicited in response to question 3, is used as an estimate of the idealistic expression level. 5. The prestige score of the maturity choice, elicited in response to question 4, is used as an estimate of the long-range time-dimension period. A total LOA score may be based on any additive combination of these, such as an average or a factor-weighted score, since they are highly intercorrelated.

The technique is direct because all stimulus questions elicit occupational responses. It is continuous because the scores on the continuum of difficulty are based on an index measuring points along the entire range of the occupational hierarchy. It is multiple-item because several questions are used, and all contribute to the final LOA score. It is obviously free-response. It is clearly incomplete because, although it has questions at both expression-levels and at the long-range time-dimension period, it fails to specify the short-range time-dimension period. It is perhaps incomplete for another more subtle reason. This is that, unless specified in the stimulus question, the respondent must impute his own time-dimension period to an expression-level question, or his own expression-level to a time-dimension question.

It is possible that the respondent may impute only one time-dimension period to all expression-level questions or may impute only one expression-level to the long-range time-dimension period. (This suggests that any one stimulus question should specify both its time-dimension period and its expression-level, which is in fact done in the Occupational Aspiration Scale described in later chapters.) The technique is obviously unbalanced: only one of the five questions, and it is the last, specifically elicits a long-range response, and no questions clearly elicit a short-range response.

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[5] See Table 1, p. 41 for a listing of the NORC (41) occupations and their rankings.

[6] One study used the words "when I am 30 years old" instead of "ten years from now."

Because of its high degree of internal consistency and its success in detecting relationships with non-LOA variables as well as its predictive validity over several years (see Chapter IV), it must be concluded that, empirically, it is probably a good measure of LOA. Its reliability, however, is unknown. It has three important practical drawbacks. For one, many persons fail to answer the questions with responses which can be assigned scores deriving from the occupational hierarchy; in fact, the non-response rates in the two studies in which it was used are 17 and 25 percent. For another, considerable guesswork is involved in assigning scores because the NORC study rates only 90 occupations and there are, of course, many others. Finally, the technique consumes far too much of the time of highly trained--and costly--personnel to be of much use. While this is true of all free-response techniques, this difficulty is more pronounced in this particular one because there are more responses to code.

Conclusion

The commercial instruments, the OL scale and the LI scale, have many difficulties due to their departures from the LOA model. In addition, their validity is not known and is probably low, but as may be inferred from the next chapter, they are not wholly invalid.[7] Their reliability is quite high, and they are easy to administer and score. The bulk of the non-commercial instruments are strong in places where the commercial instruments are weak, and weak where the others are strong. Probably most of their difficulties are due to their departure from the LOA model. Both the validity and reliability of the single-item instruments are unknown, but--again on evidence which may be inferred from the next chapter--many of these are probably not wholly invalid. The best of the non-commercial instruments is multiple-item. It more nearly approaches the LOA model, it is internally consistent, factorially pure, and has predictive validity. Also, the indirect evidence presented in the next chapter supports the predictive data concerning its validity. But it has substantial practical drawbacks, especially in that many persons have difficulty responding adequately to it, and it is difficult to score.

It is to be expected that a more useful LOA instrument would be one which is designed to take advantage of all the aspects of techniques which appear to be most effective in operationalizing the LOA model. It would probably be direct, continuous, multiple-item, structured response, complete, and balanced. This is in fact the design of the Occupational Aspiration Scale.

But before we present this instrument and the analyses of it, we shall present an analysis of LOA and its correlates. The subject of the next chapter, this analysis will state a set of hypotheses about the correlation of LOA to other variables, will briefly describe the sources of data to test the hypotheses, and will present the tests of hypotheses. The tests will utilize a number of different measures of LOA, but they will not be directly concerned with evaluating them, although some of the evidence is useful for this purpose. Rather the purpose of Chapter IV is to use available data to test the validity of the LOA concept. The weight of the evidence shows that it is a valid concept in that its measures behave more or less predictably. This, coupled with the inadequacies of the types of techniques reviewed in the present chapter, justifies the development and analysis of the Occupational Aspiration Scale.

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[7] Chapter IV lists some hypotheses concerning the correlation of LOA to other variables. Since all the evidence regarding the validity of the hypotheses comes from instruments listed in this chapter, and since the evidence tends to confirm the hypotheses, it follows that the instruments cannot be wholly invalid.

CHAPTER IV

CORRELATES OF LEVEL OF OCCUPATIONAL ASPIRATION[8]

Previous chapters have introduced the reader to the concept of LOA and to methods presently available to measure it. The next pages present an attempt to test the validity or "lawfulness" of LOA. The overall argument is stated in the introductory section. This is followed by the statement and rationale of each hypothesis. The next section presents the data testing the hypotheses. The overall conclusions are drawn in the summary.

For years a variety of techniques have been available to assess the validity of particular instruments. Methods for assessing the validity of the construct, presumably measured by any one of a variety of instruments, however, are only just beginning to emerge. These methods assume the existence of a fairly well developed theory from which predictions can be deduced. Such predictions may be tested empirically. The total process of evaluating a construct by empirical tests of predictions concerning its behavior in relation to that of other variables has been called "construct validity" (Cronbach and Meehl, 7). The special problem, included in construct validity, of assessing the correlation of instruments designed to measure the construct with variables logically related to it has been called the problem of "relational fertility" (Mc Clelland, 37).

In the present chapter, we will investigate the relational fertility of the LOA construct. A series of hypotheses will be formulated on the basis of considerations previously presented and from other social psychological knowledge. These hypotheses, encompassing a number of specific predictions, will be tested by reviewing the correlation of several measures of LOA with a wide variety of measures of other social-psychological variables. The tests are based on both published and unpublished research, including 184 correlates of LOA from about a dozen different studies. The argument is stated in the familiar form of a two-way table. That is, the number of instances in which a positive and statistically "significant" relationship is both predicted and observed will be counted as evidence supporting the hypothesis that LOA is a valid concept.

The same is true of the instances in which a statistically "non-significant" relationship is both predicted and observed. On the other hand, the number of instances in which a positive and "significant" relationship is predicted but not observed will be counted as evidence rejecting the hypothesis that LOA is a valid concept. Again, the same is true of the instances in which a "non-significant" relationship is predicted but a "significant" relationship is observed. A preponderance of accurate predictions testing each hypothesis will be considered as evidence that LOA is as useful as its theory suggests.

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[8] Much of the data on which this chapter is based are taken from unpublished research of Professor William H. Sewell of the University of Wisconsin. The writers wish to express their thanks to him for permission to publish these data. Naturally, the interpretations of the data are the sole responsibility of the writers.

The summary of this chapter shows that LOA does in fact behave predictably. However, erroneous predictions occur. Inspection of the nature of these suggests that they are due to a number of factors. Among the wrongly predicted positive correlations, some are due to the poorer LOA measures, some are due to poor measures of the non-LOA variables, one or two may be due to inaccurate reports of the available research, some are doubtless due to the present writers' mistakes in classifying particular non-LOA variables as appropriate to hypotheses being tested, and some may be due to chance underestimation of the correlation. Most of the errors in predicting no relationship are probably due to the unavailability of theory (explicit or implicit) on which to base hypotheses or to the writers' lack of knowledge of such theory; and some may be due to chance overestimation of correlations.

In all cases, the writers have sought to err, if at all, on the side of over-cautiousness. There are many instances of variables clearly belonging, and many instances of variables clearly not belonging, to a particular hypothesis. But there are border-line cases. Such doubtful cases were included in the test of the hypothesis. There is one important exception. Some variables appeared appropriate to more than one hypothesis. When these were encountered they were included in the test of only one hypothesis, and this was the one to which they seemed most appropriate to the writers.

Hypotheses

LOA was defined in previous chapters as a special instance of level of aspiration and as a type of attitude. The predictions listed below are based on the assumption that LOA will behave as other instances of level of aspiration and as other attitudes do.[9] The predictions are of three types: presumed consequences of LOA (numbers 1 and 2, and possibly 7), presumed antecedents of LOA (numbers 3-6, and possibly 7), and no relationship (number 8).

1. Object-behavior. All attitude measures are designed to predict, within limits, behavior toward the object to which they refer. This means that a valid attitude measure should be positively correlated with the behavior to which it relates. Naturally the circumstances may make the attitude difficult or impossible to carry into behavior, or may change the attitude itself. For this reason, perfect correlation is not to be expected.

Hypothesis 1. A high positive correlation will be found between LOA and subsequent level of occupational achievement.

2. Means-behavior. Frequently, there are several steps which persons believe to be necessary before an attitude results in behavior toward its ultimate object. If these "stepping stones" are believed by a large proportion of the population to be means necessary to carrying the attitude into behavior, then the attitude should be positively correlated with behavior toward them. In modern society, successful performance in the formal educational system is widely viewed as a means for high occupational achievement. The next hypothesis follows from this.

Hypothesis 2. A positive correlation will be found between LOA and any measure of success in school.

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[9] It is anticipated that a paper on the theory of attitudes and behavior, now being prepared by the first author, will be made available in the future. This paper will state the general case from which most of these hypotheses flow.

3. Group Success-Orientations. A great many sociological and anthropological studies, plus some experimental research (e.g. Sherif, 50), document the proposition that the person tends to adopt attitudes inculcated by the groups to which he belongs. This should be as true of LOA as it is of any other attitudes. Moreover, a corollary to Prediction 2 is also relevant. Namely, if one behavior is commonly viewed as necessary to the execution of another, and if the group views the latter as important for a particular member, the group will attempt to inculcate the means-behavior attitude as well as the object-behavior attitude. Inasmuch as in urban-industrial societies, high educational achievement is viewed as necessary for high levels of occupational achievement, the person should tend to have an LOA corresponding to the levels of educational aspiration his groups have for him. Both the LOA the group inculcates directly and the level of educational aspiration attitude may be called "success orientations." Hypothesis 3 concerns these success orientations of the person's groups.

Hypothesis 3. A positive correlation will be found between the person's LOA and the success orientations of the groups to which he belongs.

4. Facilitation of the Social Situation. Experimental research on level of aspiration has shown that situations producing success or failure change the person's level of aspiration accordingly (Lewin et al., 33). Merton (38) has argued that the success goal, which is largely occupational, is incorporated by most of the society. Other data appear to show that persons in situations which frustrate the desire to be a success are quite aware of it (Sewell and Haller, 48). If the goal of high occupational achievement is learned by all or most youth in the society, and if those in situations which frustrate the attempt to be successful are aware of the factors blocking their achievement, then they would be expected to lower their levels of occupational aspiration. Hypothesis 4 is based on this reasoning.

Hypothesis 4. A positive correlation will be found between LOA and the degree to which the social situation of the person tends to produce success in occupationally related areas of behavior.

5. Facilitation of Personal Orientations. As noted, experimental research shows that success results in raising levels of aspiration and failure results in the reverse. There are a number of personal orientations (traits, values, and attitudes) which probably have the same effect. If personal orientations are such that an individual frequently experiences success in areas believed to be related to occupational achievement, he would be expected to raise his levels of occupational aspiration. Conversely, if his orientations are such that he frequently experiences failure in these areas, he would be expected to lower his levels of occupational aspiration.

Hypothesis 5. A positive correlation will be found between LOA and any personal orientation tending to produce the experience of success in occupationally related areas of behavior.

6. Willingness to Act Independently. Personal action always occurs in a context. Successfully carrying one goal into action may block the success of another. If two goals are incompatible, and if this is apparent to the actor, it would be expected that he will choose to pursue the goal that is most important to him. In the previous hypotheses, it is held that LOA will be depressed by the experience of failure and elevated by the experience of success. Somewhat similarly, the present line of reasoning argues that when the person perceives that success in an unimportant area would bring failure in an important area (or that failure in an unimportant area will bring success in an important area), he

will lower his level of aspiration in the unimportant area. Concretely the youth who has a high LOA may not usually realize it without giving up much of his relationships with his family and adolescent peers. Since this is probably evident to most participants in such situations, it is expected that the dependent persons--persons who would experience difficulty in severing relations with their groups--will have low LOA's and the independent persons will have high LOA's. This is the basis for Hypothesis 6.

Hypothesis 6. A positive correlation will be found between LOA and any personal orientation expressing the willingness to act independently.

7. Self-Conceptions. Two different lines of reasoning both lead to the conclusion that LOA should be related to self-conceptions regarding success. It has been argued by Foote (15) that when a person has a certain self-conception he organizes his behavior so as to fulfill it. Success or achievement centers largely around the occupational sphere of life in the urban-industrial societies. For this reason, persons who view themselves as successful or as achievement-oriented, should tend to view themselves as high aspirers in the occupational sphere. It should follow that LOA is positively correlated with conceiving of one's self as successful or as achievement-oriented. There is another rationale leading to the same conclusion. If one's behaviors are such as to produce success and therefore to produce a high LOA, the person should certainly tend to be aware of himself as successful or as achievement-oriented. This is equivalent to saying that success or achievement breeds a corresponding self-conception. Either or both of these lines of reasoning may be accurate. Both lead to the same hypothesis.

Hypothesis 7. A positive correlation will be found between LOA and self-conceptions concerning success or achievement-orientation.

8. The Hypothesis of No Correlation. One of the key problems in relational fertility is the prediction of no correlation. If a construct is well understood, and if other variables which have been tested for correlation with it are equally well understood, it should be possible to specify which ones are correlated with the construct. This means, too, that it should be possible to specify which variables are not correlated with the construct. If a large number of variables are found to be unexpectedly correlated with the construct, it is clear that knowledge of either the construct or the external variables or both, is substantially limited. If, on the other hand, unstable correlations or correlations of zero are found where they are hypothesized, considerably more confidence in knowledge concerning the construct and the external variables is warranted.

Hypothesis 8. A correlation approaching zero will be found between LOA and all variables not specified under Predictions (1) through (7).

Types of Evidence

Data to test the hypotheses are taken from several studies. Each of these are briefly described, as follows.

Super and several of his colleagues published in 1952 a monograph reviewing three projects analyzing correlates of Strong's Occupational Level scale (Barnett, et al. 2).

1. The first of these, by G. J. Barnett, reports on a comparative study of physically able unemployed men in New York City. His data include the correlation

of six other variables with Occupational Level scale scores. These data are presented separately for each of his two samples, the chronically and the non-chronically unemployed. Correlation coefficients and TANH (Tests Against the Null Hypothesis, Kish, 30) data are presented for most pairs of variables. Barnett's data seem to require cautious interpretation. His results are often so different from those of others that we are forced to suppose either that his samples are unique or that his computations are occasionally in error.

2. The second study we draw upon is also reported in the same work. Handelsmann studied correlates of Occupational Level scores among juniors and seniors in two schools in a suburban community near New York City. He, too, presents correlation coefficients and TANH data for his samples. His samples are referred to as School A (N=64) and School B (N=68).

3. The third study was done by Stewart. His data are also presented in the same work. He reports on the TANH (but not correlation coefficients) for Occupational Level scores against about 30 variables. Unfortunately, the data are reported in a form which is often not comprehensible to the present writers, and is therefore not as useful as it would be hoped. His sample consists of 136 juniors and seniors in a high school near New York City. All are sons of skilled workers.

4. Another substantial source of data comes from Stubbins' (58) study of the prestige of occupational choices of 219 apparently normal white World War II veterans who presented themselves at a guidance center in 1948. His LOA data consists of prestige codings (by experts) of answers to the question, "If you had every opportunity to follow any career you wished, but still had to work for a living, what occupation would you choose?" Correlation coefficients and TANH data are presented for each hypothesized relationship.

5. In 1948, W. H. Sewell and Margaret Bright tested the 431 junior and senior boys in high school in a Wisconsin rurban county near Milwaukee. Sewell and Haller traced these students in 1955 to learn about their occupational and educational behavior during the intervening years.[10] Two different LOA measures were used. One is the Lee-Thorpe Level of Interest Test, first developed in 1943 and later revised, and the other is an index based on open-ended questions eliciting occupational choices. In the latter index, each respondent was asked to list all of the occupations he had considered entering, to specify the job he planned to enter (the final choice), the job he would enter if he were free to take any he wished (the free choice), the job he would like to have 10 years from then (the mature choice). The exact question-wordings are presented in Chapter III, p. 19. These were coded by a team of sociologists into actual or estimated North-Hatt (41) occupational prestige scores. The battery of responses were scored in five ways: the highest, the lowest, the final, the free, and the mature level of choice. Four of these variables (the mature level was dropped because it was so highly correlated with the free level as to be redundant) and the Lee-Thorpe scale were inter-correlated and factor-analyzed (Rao, 45).

The first orthogonal factor was indexed to yield a variable common to all five specific variables (Hagood and Price, 19). This was considered to be a measure of LOA. Incidentally, the Lee-Thorpe scale has the lowest loading on on the first factor, and makes an inconsequential contribution to the measurement of LOA by means of the index. Other variables were measured by means of objective tests or direct questions administered in a group situation, or were taken from school records. In all, this study ascertained the correlation of 57 different variables with each of the two LOA measures. Data from this study will be referred to as Jefferson County North-Hatt or Lee-Thorpe scores.

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[10] The data of Sewell and his collaborators are unpublished. They are on file at the Department of Rural Sociology, University of Wisconsin, Madison.

6. Another study was conducted by Haller on 442 17-year-old boys in school in a Michigan rurban county near Detroit. This study will be described more fully in Chapter VI, because it is the main source of data on the OAS. Here again, two different LOA measures were used. The one we are concerned with in this chapter consists of the mean North-Hatt scores for all different occupational choices selected by the boys when asked essentially the same questions as were asked by Sewell and Bright to elicit the Jefferson County North-Hatt data. (The only difference is in one question. Where the Jefferson County questionnaire asked the youth to report the work he would like to be doing "10 years from now," the present questionnaire asked him to report the work he would like to be doing "by the time I am 30 years old.")

The other LOA instrument used is the Occupational Aspiration Scale, which is the instrument to be evaluated in the later chapters of this monograph. Correlation coefficients and TANH data are available for each LOA measure and most of some 35 other variables. Only the North-Hatt correlation will be presented in this chapter, however. (The remaining data will be presented in Chapter VII, which is devoted to testing the relational fertility of the OAS.) The data are based on objective tests and multiple-question indexes from questionnaires and from school records. We shall refer to this LOA measure as Lenawee County North-Hatt scores. (The North-Hatt scores for the occupation of farmers are unrealistically high. For this reason, those choosing to farm were dropped from all comparisons using North-Hatt scores.) Other questionnaires and personality data were also collected on the members of this sample. These data are identified on pages 51-52.

Other studies provide more limited types of data, usually one or two correlates of an LOA measure. Two such studies are from one of Sewell's projects.

7. In 1957, Sewell, Haller and Straus published an article (49) presenting the TANH of LOA (North-Hatt scores) with fathers' occupational prestige scores (also North-Hatt) and Henmon-Nelson[11] mental maturity scores for a one-sixth random sample of Wisconsin high school seniors (Sewell, et al., 49). This will be referred to as Sewell, Haller, and Straus.

8. Using other data from the above project, Haller and Sewell published a study including the TANH of Henmon-Nelson mental maturity scores and farm residence (21). Boys who planned to farm were not included in this report.

9. Dynes and others made the TANH of North-Hatt scores of Cincinnati youth against the quality of interpersonal relations in the family, finding that higher LOA scores occur among youth from families with poor relationships (Dynes, et al., 12).

10. Holloway and Berreman (24) have shown that among Oregon junior high school boys, both negro status and lower social class status depress LOA, as measured by the Carson Mc Guire scale.

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[11] In this chapter, published instruments will be given full citations only when they are mentioned in connection with previously unpublished data.

Tests of the Hypotheses

At the beginning of this chapter it was noted that the relational fertility of LOA might best be assessed by formulating hypotheses or predictions based on general knowledge about attitudes and level of aspiration. These were presented in the previous section. Basically, the predictions are of two kinds: the existence of a statistically significant correlation in a certain direction and the existence of no correlation.

If the reasoning behind the hypotheses is substantially correct, if all the instruments are adequate--which is not wholly true--and if the research were properly executed--which is doubtful in some cases--then other than for sampling errors there should be no cases of unpredicted direction of "significance" of correlation. All positive predictions should be positive, and all zero predictions should approach zero, as indicated by the TANH. (We have cast all predictions of non-zero relationships in the positive form.) If this can be done with accuracy, it may be concluded that LOA is a valid construct.[12] A great deal is known about it. The standard .05 level of "statistical significance" is used in the TANH. Two-tailed tests are presented because the writers of most of the articles use it, and because we wish to err, if at all, on the side of over-cautiousness.

A few complications deserve mention. 1. Some studies, especially Stewart's, (Barnett, et al., 2) include names of variables which the writers are unable to interpret. In such cases the evidence is ignored. 2. At times, Barnett's (Barnett, et al., 2) samples show negative correlations where other studies show positive correlations. These are too systematic to be due to chance or to poor measures. It appears that either his sample is quite unusual or some of his computations are in error. As a result his data must be used with care. 3. The non-LOA variables have been classified by the writers as appropriate or inappropriate to test each prediction. We may well have made errors in classifying the non-LOA variables. 4. The writers have worked with some of these data for a long time so in some instances they may have had the benefit of knowing in advance the correlation of up to twenty or so of the variables with LOA. Naturally, we have tried to guard against such influence, but the possibility of its existence is always present. 5. Finally, the various measures of LOA are probably not equally good. A given measure of LOA may be poor because it does not clearly relate to the occupational hierarchy or for a number of other reasons. (See Chapter III). Points 2 and 5 probably tend to bias against accepting the hypotheses, while the influence of points 1, 3 and 4 is unknown. For present tests, all interpretable data have been assumed to be equally good.

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[12] Fortunately, in many of these tests there are either two or more different measures of LOA used on the same or different samples, or there are two or more similar measures of LOA used on different samples. Hence, for many of the correlations and TANH's, there are comparative data to test the hypotheses. Thus, quite strong evidence is available where comparative data exist and both are either in agreement or disagreement with the prediction to which they refer. Weaker, but useful, evidence is available when only one study has reported a test of an LOA measure against another variable. Equivocal evidence occurs when two comparable tests are contradictory. When this happens it is due either to unique characteristics of different measures of the same variable, either LOA or the other variable, or to the occurrence of a spuriously high or low correlation coefficient. We do not make use of this information, but the discerning reader will take note of it as it is presented.

Hypothesis 1. A high positive correlation will be found between LOA and subsequent level of occupational achievement.

In 1955, seven years after the initial testing, the Jefferson County sample members were traced and their actual occupations, among other things, were recorded. These were assigned actual or estimated North-Hatt ratings, and were correlated with the factor-weighted North-Hatt LOA scores as well as the Lee-Thorpe scores, thus obtaining two estimates of the correlation of LOA to prestige level of occupational achievement. The correlation of level of occupational achievement with LOA as measured by the North-Hatt rating technique was found to be +.46, and as measured by the Lee-Thorpe technique it was found to be +.17.

Even the first of these is not especially high, and the last is quite low. On the basis of the first it would be concluded LOA tends to predict behavior toward its object. The second is almost negative evidence. Whether a period longer than seven years would have raised or lowered the correlation of LOA with the criterion is a moot question. If the original (1948) LOA had undergone substantial change as time passed, the correlation would drop. But if LOA is a stable variable which changes little over time, the correlation might become larger as the high aspirers find and exploit new opportunities to fulfill their LOA's.

But there is another way to decide whether the correlation of LOA with level of achievement is large. That is to compare this correlation with that of LOA and other variables. Some 50 other variables were tested against level of occupational achievement in this study. They include intelligence, college plans, parental educational aspirations for the youth, parental socio-economic status, as well as others. No other 1948 variable is as highly correlated with levels of occupational achievement as is the North-Hatt LOA measure. On the other hand, there are a number of non-LOA variables more highly correlated with level of occupational achievement than are the Lee-Thorpe scores. Thus, it is concluded that at least one LOA measure supports the hypothesis. But the other is much less clear. The Lee-Thorpe correlation of +.17 is quite low. Moreover, a number of other 1948 variables are more highly correlated with prestige level of occupational achievement than is the Lee-Thorpe scale. On the basis of this latter evidence we must conclude either that the Lee-Thorpe instrument is not a good measure (a point supported by the discussion in Chapter III) or Hypothesis 1 concerning the object-behavior criterion is not wholly supported. In accord with the procedure specified above, however, these data are counted as one bit of evidence in favor of the hypothesis and one against it.

Hypothesis 2. A positive correlation will be found between LOA and any measure of success in school.

Several LOA measures have been tested against a variety of measures of success in school. The latter include (a) grade-points in high school (standardized to remove inter-school differences), (b) number of extra-curricular activities in high school, (c) amount of college training desired, and (d) number of years of school completed.

(a) Grade point averages in high school were correlated with North-Hatt scores in both the Lenawee County and the Jefferson County studies, as well as with Lee-Thorpe scores in the latter. Handelsmann also tested against Strong's Occupational Level Scale scores in both of the schools he studies. The respective correlation coefficients are Lenawee, North-Hatt: +.53; Jefferson, North-Hatt: +.42; Jefferson, Lee-Thorpe: +.30; Handelsmann, School A, Strong's Occupational Level Scale: +.42; and Handelsmann, School B, Strong's Occupational Level Scale:

+.30. All five of these coefficients agree with the hypothesis.

(b) The number of high school extra-curricular activities in which the youth engaged was correlated with Strong's Occupational Level Scale scores in studies by Handelsmann and Stewart. The same variable was also correlated with the occupational choice prestige scores by Stubbins, and with North-Hatt and Lee-Thorpe scores in the Jefferson County study. These correlations or TANH's are: Handelsmann, School A, Strong's Occupational Level Scale: +.26; Handelsmann, School B, Strong's Occupational Level Score: not related; Stewart, Strong's Occupational Level Scale: $P<.05$, direction of relation positive; Stubbins, occupational choice prestige scores: +.16; Jefferson County, North-Hatt: +.34; and Jefferson County, Lee-Thorpe: +.19. Of the six predictions in this test, five are correct and one is incorrect.

(c) Amount of college training desired has been tested against LOA in both the Lenawee County and the Jefferson County studies. The respective correlation coefficients are Lenawee County, North-Hatt: +.67; Jefferson County, North-Hatt: +.38, and Jefferson County, Lee-Thorpe: +.27. Thus there are three tests of the prediction, all of which support it.

(d) The number of years of school the person completed has been measured in several ways in different studies. In the Jefferson County study, it refers to the number of years of college completed. For Barnett's samples of unemployed men it covers all possible levels from primary school through the Ph.D. degree. In Stubbin's study it appears to cover a range from high school drop-outs to persons with college training. (This is not known; it is inferred from the mean of 11.6 years of school he presents.) The findings are Jefferson County, North-Hatt: +.52; Jefferson County, Lee-Thorpe: +.38; Barnett, chronically unemployed, Strong's Occupational Level Scale: +.19; Barnett, nonchronically unemployed, Strong's Occupational Level Scale: -.19; and Stubbins, occupational choice prestige scores: +.34. Regarding this test of Hypothesis (2) we find four agreements and one apparent contradiction. The contradiction is in Barnett's nonchronically unemployed sample. As was indicated in the introduction to this section, this sample's behavior is in sharp contrast to that of other samples on some of the variables with which we are concerned. For this reason it is difficult to know whether it should really be accepted as negative evidence. For purposes of this test, of course, it is accepted as such.

A total of 19 specific predictions were made to test Hypothesis (2). There were 17 confirmations, one clear contradiction, and one apparent contradiction. (Both of the latter used Strong's Occupational Level Scale as the LOA measure and one of the latter comes from Barnett's deviant nonchronically unemployed sample.) The evidence thus provides substantial support for Hypothesis (2).

Hypothesis 3. A positive correlation will be found between the person's LOA and the success orientations of the groups to which he belongs.

Again, several LOA measures have been tested against the success orientations of the person's groups. Unfortunately, the only group on which data are available is the family. These include (a) sons' estimates of their parents' levels of occupational aspiration for them and the sons' LOA scores; and (b) sons' estimates of parents' levels of educational aspiration for the sons and sons' LOA scores.

(a) Sons' estimates of their parents' levels of occupational aspiration for them were correlated with the sons' North-Hatt scores in the Lenawee County study. The respective correlation coefficient is +.29. The one coefficient available then, agrees with the hypothesis.

(b) Sons' estimates of parents' levels of educational aspiration for them are available from both the Jefferson County and Lenawee County studies. These correlation coefficients are Jefferson County, sons' North-Hatt LOA scores by sons' estimates of their fathers' levels of educational aspiration for them: +.37; Jefferson County, sons' Lee-Thorpe scores by sons' estimates of their fathers' levels of educational aspiration for them: +.31; Jefferson County, sons' North-Hatt LOA scores by sons' estimates of their mothers' levels of educational aspiration for them: +.36; Jefferson County, sons' Lee-Thorpe LOA scores by sons' estimates of their mothers' levels of educational aspiration for them: +.32 Lenawee County, sons' North-Hatt LOA scores by sons' estimates of their parents' levels of educational aspiration for them: +.44. Again, all of these correlation coefficients agree with the hypothesis.

A total of six specific correlation coefficients are available to test Hypothesis (3). Since all are in agreement with it, it may be concluded that the hypothesis is confirmed.

Hypothesis 4. A positive correlation will be found between LOA and the degree to which the social situation of the person tends to produce success in occupationally related areas of behavior.

(a) Social class status measures are one set of social situational variables which may influence LOA by providing differential frustration of the person's attempts to achieve the success goal characteristic of urban-industrial society. This may be due to two different elements. The most obvious is that lower class youth lack the financial means to utilize the channels of achievement available in such societies. The less obvious is that the lower class youth may lack the more subtle behavior patterns ("manners") viewed by those of other classes as necessary for high achievement, and consequently he may have his efforts at achievement rebuffed. The various social class status and LOA measures, and the studies in which they were used are as follows. Father's occupational prestige status: Jefferson County, North-Hatt ratings and Lee-Thorpe scores; Lenawee County, North-Hatt ratings; and Stubbins' experts' ratings of the prestige of subjects' choices; Sewell, Haller and Straus (49), North-Hatt ratings. Intelligence level of fathers' occupation (Barr Scale scores): Barnett's study. Sewell Socioeconomic Status Scale (Sewell, 47) scores, slightly modified: Jefferson County, North-Hatt ratings and Lee-Thorpe scores; Lenawee County, North-Hatt ratings. Fathers' and mothers' educational status (number of years of formal education): Jefferson County, North-Hatt ratings and Lee-Thorpe scores; Lenawee County, North-Hatt ratings. Education of siblings: Stubbins' experts' ratings of the prestige of the subjects' choices. The degree of importance of the family in the community (youths' estimate): Jefferson County, North-Hatt ratings and Lee-Thorpe scores. Youths' estimate of his parents' ability to provide him with financial assistance: Jefferson County, North-Hatt ratings and Lee-Thorpe scores. Youths' estimate of the conveniences, comfort and appearance of his home as compared to others: Jefferson County, North-Hatt ratings and Lee-Thorpe scores. Youths' estimate of the income of his family compared to others in the community: Jefferson County, North-Hatt ratings and Lee-Thorpe scores. Educational level of the subjects' relatives: Stewart, Strong's Occupational Level Scale scores.

(b) Members of minority groups often face discrimination over jobs. To the individual, this probably appears to be a rebuff to his attempts to achieve. Both personal experiences of this sort and experiences others communicate to the person would be expected to depress levels of occupational aspiration. One set of data are available to test this hypothesis. These are from the Holloway and

Berreman study of Oregon youth using Carson Mc Guire's rating device as the LOA measure and White-Negro racial differences as the social situational variable.

(c) The youths' parents' willingness to contribute financial support toward helping him to get a start should present another social situational variable resulting in differential frustration of the youths' high achievement orientations. The correlation of both North-Hatt ratings and Lee-Thorpe scores with the youths' perception of this variable are available from the Jefferson County study.

(d) Post-educational work experience. For those who have been out of school for a period, the experience of having been situated at various levels of the occupational hierarchy and of competing for higher jobs provides a set of social situational influences which should raise or lower the LOA scores of a person. Five correlation coefficients are available to test this aspect of the hypothesis. Three of these come from Stubbins' study in which LOA is measured by experts' judgments as to the prestige of the person's occupational choice. They are the prestige level of the person's usual occupation, his rank while in military service, and his employment (versus unemployment) status. The other two, both using amount of employment as the work experience measure (versus unemployment), are from Barnett's studies of Strong's Occupational Level Scale scores of chronically and nonchronically unemployed men.

The respective correlation coefficients or TANH's follow. In all cases a positive correlation indicates that high LOA is associated with the social situation which is assumed to be least frustrating.

(a) Social class status. Father's occupational prestige status--Jefferson County, North-Hatt: +.20; Jefferson County, Lee-Thorpe, +.12; Stubbins' experts' occupational prestige ratings: +.14; Lenawee County, North-Hatt: +.29; Sewell, Haller, and Straus, North-Hatt ratings: P<.001, direction of relation positive. Intelligence level of father's occupation--Barnett, Barr Scale scores of chronically unemployed: not significant; Barnett, nonchronically unemployed, Barr Scale scores: -.24. Sewell Socio-economic Status scores--Jefferson County, North-Hatt: +.21; Jefferson County, Lee-Thorpe: +.24; Lenawee County, North-Hatt: +.38. Fathers' education status--Jefferson County, North-Hatt: +.26; Jefferson County, Lee-Thorpe: +.27; Lenawee County, North-Hatt: +.27. Mothers' educational status--Jefferson County, North-Hatt. +.21; Jefferson County, Lee-Thorpe: +.25, Lenawee County, North-Hatt: +.25. Educational status of relatives--Stewart, Strong's Occupational Level Scale scores: not related. Education of siblings--Stubbins' experts' ratings of the prestige level of the choice: +.15. The importance of the youths' parents in the community (youths' estimate)--Jefferson County, North-Hatt: +.11; Jefferson County, Lee-Thorpe: not related. Parents' ability to provide financial assistance to the youth (youths' perception)--Jefferson County, North-Hatt: +.11; Jefferson County, Lee-Thorpe: +.11. Youths' estimate of the comparative quality of the conveniences, comfort and appearance of his home--Jefferson County, North-Hatt: not related; Jefferson County, Lee-Thorpe: not related. Youths' estimate of his family's income compared to others in the community--North-Hatt: not related; Lee-Thorpe: not related.

In sum, 26 tests of the aspect of Hypothesis 4 referring to the social class status situation of the person have been presented. All but eight of these were in agreement with the hypothesis. Two of the negative cases are from Barnett's study of Strong's Occupational Level Scale scores of chronically and nonchronically unemployed men, and one is from Stewart's study of Strong's Occupational Level Scale scores of working class boys. Two more are from the Jefferson County study, and both concern the youths' perception of the convenience, comfort and appearance of his home as compared to that of others. The North-Hatt ratings and Lee-Thorpe scores each fail to be related to this variable. The sixth negative case concerns the youths' perception of the importance of his parents in the community and the Lee-Thorpe scores. The last two (also from the Jefferson County study) concern both North-Hatt and Lee-Thorpe scores in relation to the youth's perception of his family's income.

(b) Race (Negro vs. White)--Holloway and Berreman, Carson Mc Guire occup tional ratings: $P<.05$ (direction positive, i.e., whites have higher LOA's). Thus, regarding race there is one test of the hypothesis and that agrees with it.

(c) Parents' willingness to provide financial assistance to the youth (youths' perception)--Jefferson County, North-Hatt ratings: not related; Jef son County, Lee-Thorpe: not related. In this set, data for two tests of the hypothesis are available, and both are contrary to it.

(d) Post-educational work experiences. Prestige level of usual occupati Stubbins, experts' ratings of the prestige of the person's occupational choic +.13. Rank in military service--Stubbins, experts' ratings of the prestige o the person's occupational choice: +.19. Employment (versus unemployment) st Stubbins, experts' ratings of the prestige of the person's occupational choic +.14. Amount of employment (versus unemployment)--Barnett's chronically unemployed sample, Strong's Occupational Level Scale scores: not related; Barnet nonchronically unemployed sample, Strong's Occupational Level Scale Scores: +.

Thus, there are five tests of the aspect of Hypothesis 4 referring to success in post-educational work experience. Four of these support the predi tion and one does not. The latter concerns the amount of employment and Stro Occupational Level Scale scores of Barnett's chronically unemployed sample.

Summarizing, Hypothesis 4 holds that social situational factors frustrat efforts to achieve the success goal should result in lowered LOA scores. Dat are available for the consequences for LOA of four different types of social situational variables, social class status, race, parents' willingness to con bute financial support to help the youth, and post-educational work experienc Twenty-six tests are available concerning the first of these; 18 are in agree with the hypothesis and eight are contrary to it. Of the latter, three use t Strong's Occupational Level Scale (the Strong's Occupational Level Scale is n used in any of the confirmations), and two of the three are from Barnett's st The others use North-Hatt and Lee-Thorpe LOA scales, but depend upon indirect measures of social class status--the youth's perception of some aspect of his family's status as compared to others.

Only one test is available concerning race, the second of the social sit tional variables. It is in agreement with the hypothesis. Two tests are ava able concerning the third social situational variable, the youths' parents' willingness to provide financial assistance to him. Both of these are contra to the hypothesis. Both depend upon an indirect measure, the youth's percept of his parents' willingness to provide financial assistance to him. Five tes are available regarding post-educational work experience and four of these su the hypothesis. Again, the negative instance concerns Strong's Occupational Scale scores of one of Barnett's studies. In general, it appears warranted t conclude that, with 23 confirmations out of 34 specific tests, the hypothesis supported by the evidence. Moreover, all 11 instances classified as negative evidence are of somewhat doubtful validity.

Hypothesis 5. A positive correlation will be found between LOA and any personality orientation tending to produce the experience of success in occupationally related areas of behavior.

Data to test this hypothesis are from a variety of variables and sources. Many studies have correlated an intelligence test with one measure or another of LOA, including almost every available measure of the latter variable. Except for these, practically all of the LOA measures are either from the Jefferson County study or the Lenawee County study. The only other exceptions to this are Handelsmann's two applications of Strong's Occupational Level Scale. Including intelligence, correlates are available for several personality orientation variables which, in the judgment of the writers, fulfill the requirements of the hypothesis. These have been grouped into five categories, as follows.

(a) Intelligence: clearly, those who are of higher intelligence, either by nature or nurture, will tend to be successful in their behaviors related to occupational achievement, and these in turn should tend to have higher LOA scores. Standard mental maturity or intelligence tests have been used in all the studies presented.

(b) Orientations facilitating intelligent action: some personality orientations appear to restrict the range of behaviors the person can carry out. They should, therefore, limit the success of the person in any activity requiring sustained effort. For this reason the person having such an orientation should tend to be unsuccessful in a disproportionate number of his actions. Orientations of this type are called by a number of names, such as nervousness, personality maladjustment, neuroticism, etc. Their polar opposites may be considered as facilitating intelligent action. Present data include several indexes judged to be measures of some of these variables. They include the total adjustment score of the California Test of Personality, and Factors C, F, O, and Q_4 of Cattell's 16 P-F Test (27). The latter are called, respectively, emotional stability vs. dissatisfied emotionality, surgency vs. desurgency, anxious insecurity vs. placid self-confidence, and nervous tension.

(c) Socially facilitating character orientations: certain of the "character traits" tend to produce behavior resulting in relatively consistent rewards or punishments for the person possessing them, quite apart from the competence of his technical or intelligence-directed performance. It seems reasonable to assume that, in interaction with teachers and others who mete out evaluations of the young person's occupationally related behaviors, the youth is rebuffed if he has "inappropriate" ways of relating himself to others. The converse should happen when the youth with socially approved behavior orientations interacts with others. The person should experience success or failure to the extent that he consistently presents himself to teachers and others in accord with these orientations. For this reason, LOA should vary with what we are here calling socially facilitating character orientations. These variables include the 16 P-F Test Factors A, G, N and Q_3 (27). In order, these are called cyclothymia vs. schizothymia, character or super-ego strength vs. lack of internal standards, sophistication vs. rough simplicity, and will control or character stability vs. lack of will control.

(d) Achievement orientation: all other things being equal, it stands to reason that those whose orientations channel their energies into action facilitating occupational and educational achievement should experience success more frequently than others do. LOA has been correlated twice with a variable measuring achievement orientations, namely a teacher's rating of the youth's general level of aspiration, presumably a measure of achievement drive. These data are taken from Handelsmann's studies.

The correlation coefficients or TANH's testing the hypotheses are these:

(a) Intelligence. Henmon-Nelson Mental Maturity test raw scores--Sewell, Haller and Straus, North-Hatt: $P<.001$, direction of relation positive; Jefferson County, North-Hatt: +.25; Jefferson County, Lee-Thorpe: +.24. Cattell's Test of G-Culture Free (6)--Lenawee County, North-Hatt: +.46. Otis scores--Barnett, chronically unemployed men, Strong's Occupational Level Scale: +.28; Barnett, nonchronically unemployed men, Strong's Occupational Level Scale: -.24; Handelsmann, School A, Strong's Occupational Level Scale: +.42; Handelsmann, School B, Strong's Occupational Level Scale: not related ($r=+.20$). Stewart, unspecified intelligence scores, Strong's Occupational Level Scale: $P<.05$, direction of relation positive. The Wonderlich Personnel Test scores--Stubbins, experts' ratings of the prestige of the occupational choice: $r=+.43$. In sum, ten tests of the correlation of LOA measures to intelligence scores have been presented. In eight of these, the hypothesis has been found to be accurate. In one (Handelsmann's School B) it is problematical and in one (Barnett's nonchronically unemployed sample) is apparently wrong. The clearest negative case comes from Barnett's study. As has been seen, this study is the source of much apparent negative evidence. Also, both it and the problematical negative case depend upon Strong's Occupational Level Scale scores to measure LOA.

(b) Orientations facilitating intelligent action. These correlation coefficients on these measures are the following: California Test of Personality total adjustment scores--Jefferson County, North-Hatt: +.16; Jefferson County, Lee-Thorpe: +.24; Lenawee County, North-Hatt: +.30. Cattell's 16 P-F Test, all data from Lenawee County, 16 P-F Test Factor C, emotional stability--North-Hatt: +.19; 16 P-F Test Factor F, surgency--North-Hatt: not related; 16 P-F Test Factor O, lack of anxious insecurity--North-Hatt: not related; 16 P-F Test Factor Q_4, lack of nervous tension--North-Hatt: not related. There are seven tests of this aspect of the hypothesis. In four of these the hypothesis appears to be supported; in three it receives no support. All of the non-supportive instances involve the North-Hatt scale. Only one other instrument, the Lee-Thorpe Scale, was used for these tests, and it was only used once. While the weight of evidence tends to support this aspect of the hypothesis, the fact that nearly one-half of the tests are negative strongly suggests that it is either inaccurate or needs to be modified. (In any case, the negative cases are used as negative evidence in testing the construct validity of LOA.)

(c) Socially facilitating character orientations. The data on measurements testing this aspect are all taken from the Lenawee County study: 16 P-F Test Factor A, cyclothymia vs. schizothymia--North-Hatt: not related; 16 P-F Test Factor G, super-ego strength--North-Hatt: +.23; 16 P-F Test Factor N, sophistication--North-Hatt: +.21; 16 P-F Test Factor Q_3, will control and character stability--North-Hatt: +.13. This aspect of the hypothesis is tested by four correlation coefficients. Three are as hypothesized and one is contrary. (The one contrary case is based on North-Hatt data, the only scale used for this series of tests.)

(d) Achievement orientation. These tests of the prediction are as follows. Teacher's rating of youth's general level of aspiration--Handelsmann's School A, Strong's Occupational Level Scale: +.25; Handelsmann's School B, Strong's Occupational Level Scale: +.24. Thus, there are two tests and two confirmations.

In sum, there are four sets of data testing the hypothesis that a positive correlation will be found between LOA and any personality orientation tending to produce the experience of success in occupationally related areas of behavior. These four are intelligence, orientations facilitating intelligent action, socially facilitating character orientations, and achievement orientations. The data regarding the first orientation show 10 tests, eight confirmations and two rejections. Data regarding the second orientation show seven tests, four confirmations and three rejections. Data regarding the third orientation show four tests, three confirmations and one rejection. Finally, data regarding the fourth orientation show two tests, both of which are confirmations. Over all, there were 23 tests, 17 of which are in agreement with the prediction and six of which are in disagreement with it. Special instances of negative cases appear at two points. For one, nearly one-half of the tests regarding the factors interpreted as orientations facilitating intelligent action were negative. For a second, Barnett's non-chronically unemployed sample again appears to be a negative case. The Strong's Occupational Level Scale and the North-Hatt ratings both appear among the negative cases. Over all, it may be concluded that personal orientations tending to produce the experience of success are in fact positively correlated with LOA. But the sizeable number of rejections among variables expected by the writers to facilitate or inhibit the use of intelligence suggests that knowledge of this sub-area may be limited.

Hypothesis 6. A positive correlation will be found between LOA and measures of any personality orientation expressing the willingness to act independently.

All data testing this hypothesis come from the Lenawee County study. Altogether there are four different variables which we take to be measures of "willingness to act independently." These are Cattell's Factors E, H, Q_1 and Q_2 from the 16 P-F Test (27) called "dominance or ascendance vs. submission," "adventurous autonomic resilience or adventurousness vs. inherent, withdrawn schizothymia or timidity," "radicalism vs. conservativism," and "independent self-sufficiency vs. lack of resolution."

The correlation coefficients testing this hypothesis follow: 16 P-F Test Factor E, dominance--North-Hatt: +.11; 16 P-F Test Factor H, adventurousness--North-Hatt: +.22; 16 P-F Test Q_1, radicalism--North-Hatt: +.13; 16 P-F Test Factor Q_2, independent self-sufficiency--North-Hatt: +.14.

Summarizing, four correlation coefficients are available to test the hypothesis that LOA is positively correlated with willingness to act independently. In all of these, the data support the hypothesis.

Hypothesis 7. A positive correlation will be found between LOA and self-conceptions concerning success or achievement orientation.

The available items testing this hypothesis come from several studies. Two pairs of tests, one concerning leadership self-conception in school activities and the other concerning the youth's estimate of his chances to get ahead, come from the Jefferson County, Wisconsin study. Another pair of tests come from Barnett's study of chronically and non-chronically unemployed New York men. Still another pair of tests come from Handelsmann's study of working class boys in two New York area schools.

The leadership self-concept variable is a crude three-point scale, in which the youth is assigned a score of zero if he reports that his number of leadership activities is less than average, one if average, and two if more than average. The youth's estimate of his comparative chances to get ahead is also gauged by a crude scale, this having five possible points ranging from zero for "very much below average" to four for "very much above average." Barnett's study uses a multiple-item index of satisfaction or dissatisfaction with vagrancy as a way of life. Handelsmann uses a self-rating of general level of aspiration.

These are the respective correlation coefficients: Leadership self-conception (school activities)--Jefferson County, North-Hatt: +.33; Jefferson County, Lee-Thorpe: +.23. Youth's estimate of his chances to get ahead--Jefferson County, North-Hatt: +.13; Jefferson County, Lee-Thorpe: +.10. Dissatisfaction with vagrancy as a way of life--Barnett's chronically unemployed men, Strong's Occupational Level Scale scores: +.73; Barnett, nonchronically unemployed men, Strong's Occupational Level Scale scores: +.68. Self-rating of general level of aspiration--Handelsmann, School A, Strong's Occupational Level Scale scores: +.44; Handelsmann, School B, Strong's Occupational Level Scale scores: not related.

Summarizing, eight tests are available for this hypothesis. Seven are in agreement with the prediction and one is not. The latter comes from Handelsmann's study of self-ratings of general levels of aspiration and Strong's Occupational Level Scale scores of high school boys. Overall, the prediction appears tenable.

Hypothesis 8. A correlation approaching zero will be found between LOA and all variables not specified under Hypothesis (1) through (7).

When a construct is well understood, it is possible to predict which other variables will be correlated with it. This is the objective of the previous tests. Such a statement, however, implies something else. That is, it implies that when a construct is well understood, it is possible to predict which variables are not correlated with it. This is the objective of the present hypothesis.

Data testing the hypothesis come from practically all of the studies used in testing the previous hypotheses. With some exceptions, all correlation coefficients or TANH's not reported in testing previous hypotheses will be presented to test the present hypothesis. The exceptions concern variables having operational or conceptual definitions too obscure to comprehend. For example, a report may state that "religion of family" is correlated (or uncorrelated) with a certain LOA measure. If the report fails to tell what "religion of family" means--Protestant vs. Catholic, religious vs. atheist, member of a prestige denomination vs. member of non-prestige denomination, etc.--it is impossible to decide whether the variable bears a logical relationship to LOA. Variables dropped for this reason included two used by Stubbins (counselors' estimate of the subjects' personality, and the difference between the levels of the occupations possessed and desired by the subject), three used by Handelsmann (each called a measure of level of aspiration), and all of Stewart's variables not reported above.

The .05 "significance" level will be taken as the criterion for correlation approaching zero. If $P > .05$ then we shall consider that the evidence favors the hypothesis; if $P < .05$ then we shall consider that the evidence is contrary to the hypothesis. Negative correlations of $P < .05$ are of course also counted as evidence against the hypothesis.

Inasmuch as no logical ordering of the tests can be inferred from theory, the data testing the hypothesis are grouped only by the study from which they are taken. (There is one exception: when two or more studies use the same non-LOA variable, all the data regarding that variable are presented at the same point in the text.) The first set are from the Jefferson County study. Father's non-farm vs. farm occupation--North-Hatt ratings: not related; Lee-Thorpe scores: +.12. Father's approval of the youth's final occupational choice, North-Hatt: +.11; Lee-Thorpe: not related. Mother's approval of the youth's final occupational choice--North-Hatt: +.10; Lee-Thorpe: not related. Father's encouragement of the youth to follow his occupation--North-Hatt: not related; Lee-Thorpe:

not related. Youth's rating of the importance of "opportunity for employment"--North-Hatt: not related; Lee-Thorpe: not related. Youth's rating of the importance of "the social standing of the job in the community"--North-Hatt: not related; Lee-Thorpe: not related. Youth's rating of the importance of "working hours"--North-Hatt: -.28; Lee-Thorpe: -.18. Youth's rating of the importance of "the kind of people you meet"--North-Hatt: not related; Lee-Thorpe: not related. Youth's rating of the importance of "the good you can do"--North-Hatt: +.24; Lee-Thorpe: not related. Youth's rating of the "opportunity for advancement"--North-Hatt: not related; Lee-Thorpe: +.11. Youth's rating of "the chance to be one's own boss"--North-Hatt: not related; Lee-Thorpe: not related. Youth's rating of "the financial reward"--North-Hatt: -.17; Lee-Thorpe: not related. Youth's rating of "the education it takes"--North-Hatt: +.11; Lee-Thorpe: not related. Youth's perception of his father's satisfaction with his (the father's) job--North-Hatt: not related; Lee-Thorpe: not related. Youth's perception of his mother's satisfaction with the father's job--North-Hatt: not related; Lee-Thorpe: not related. Youth's perception of his general agreement (versus disagreement) with his father--North-Hatt: not related; Lee-Thorpe: not related. Youth's perception of his general agreement (versus disagreement) with his mother--North-Hatt: not related; Lee-Thorpe: not related. The number of occupations seriously considered by the youth--North-Hatt: +.22; Lee-Thorpe: +.16. Amount of thought the youth reports having given to choosing an occupation--North-Hatt: +.22; Lee-Thorpe: +.18. Youth's estimate of the amount of knowledge he has about his specific occupational choice--North-Hatt: -.20; Lee-Thorpe: -.20. Youth work (versus no work) experience while in school--North-Hatt: -.12; Lee-Thorpe: not related. Youth's estimate of his ability for the occupation he plans to enter--North-Hatt: +.11; Lee-Thorpe: not related. Youth's belief that his occupational plan was influenced strongly by his father--North-Hatt: not related; Lee-Thorpe: not related. Youth's belief that his occupational choice was influenced strongly by his mother--North-Hatt: not related; Lee-Thorpe: not related. Youth's belief that his occupational choice was influenced strongly by his siblings--North-Hatt: -.12; Lee-Thorpe: not related. Youth's belief that his occupational choice was influenced strongly by other relatives--North-Hatt: not related, Lee-Thorpe: not related. Youth's belief that his occupational choice was influenced strongly by his teachers--North-Hatt: +.23; Lee-Thorpe: not related. Youth's belief that his occupational choice was influenced strongly by his peers--North-Hatt: not related; Lee-Thorpe: not related. Youth's belief that his occupational choice was strongly influenced by himself--North-Hatt: not related; Lee-Thorpe: not related. Youth's satisfaction with his father's education--North-Hatt: +.14; Lee-Thorpe: +.15. Youth's perception of his father's satisfaction with his (the father's) education--North-Hatt: +.11; Lee-Thorpe: not related. Mother's work (versus no work) outside the home--North-Hatt: not related; Lee-Thorpe: not related. Size of youth's home community--North-Hatt: not related; Lee-Thorpe: +.11. Parent's marital status (broken home versus nonbroken home)--North-Hatt: not related; Lee-Thorpe: not related. Years of military service (between high school, 1948, and restudy, 1955)--North-Hatt: not related; Lee-Thorpe: not related.

The second set of data testing the final hypothesis come from the Lenawee County study. Cattell's 16 P-F Test, Factor I, emotional sensitivity versus tough maturity--North-Hatt rating: not related. Cattell's 16 P-F Test, Factor L, paranoid schizothymia versus trustful altruism--North-Hatt: not related. Cattell's 16 P-F Test, Factor H, hysteric unconcern ("bohemianism") versus practical concernedness--North-Hatt: not related. Multiple-item index of the youth's concern over the social class status of his family[13]--North-Hatt: not related.

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[13] An index similar to a factor reported in previous literature. See Sewell and Haller (48).

A third set of data testing the last hypothesis are from Stubbins' study of veterans applying for counseling service. Veteran's marital status--experts' ratings of the prestige of the person's occupational choice: not related. Number of veteran's dependents--experts' ratings: not related. Number of years of employment--experts' ratings: not related. The difference between the education of the veteran and his siblings--experts' ratings: +.20.

Miscellaneous data come from various sources. These include the studies of Barnett, Handelsmann, Stubbins, and Stewart, as well as some not previously mentioned, including that of Dynes et al. (12) and Haller and Sewell (21). Age: Jefferson County, North-Hatt: not related; Jefferson County, Lee-Thorpe: not related; Barnett, chronically unemployed, Strong's Occupational Level Scale scores: not related; Barnett, nonchronically unemployed, Strong's Occupational Level Scale scores: -.30 (presumably, $P<.05$, but this is not reported by Barnett); Handelsmann, School A, Strong's Occupational Level Scale: not related; Handelsmann, School B, Strong's Occupational Level Scale: not related. Stubbins, experts' ratings of the prestige of the occupational choice: not related. Farm (versus non-farm) residence--Haller and Sewell (state-wide sample of high school seniors in Wisconsin), North-Hatt ratings: not related. Poor relationships among family members, Dynes, et al., North-Hatt ratings: $P<.05$.

Summarizing, Hypothesis (8) holds that a low correlation approaching zero will be found between LOA and any variable not included in Hypothesis (1) through (7). Hence, accepting the TANH is a confirmation of the hypothesis and rejecting the TANH is a disconfirmation. Over all, 88 tests have been presented. Of these, 62 tend to confirm the hypothesis, while 26 are contrary to it. The evidence clearly is weighted toward accepting the hypothesis, but the 26 exceptions cannot be discounted. Evidently, present knowledge of LOA and its correlates is incomplete; chance over-estimation of the amount of correlation probably could not account for so many disconfirmations. It appears likely that LOA varies systematically with factors not anticipated in the hypotheses.

Summary

It has been held that the validity of a construct may be tested by successfully predicting its relationships to other variables. To perform such a test of the validity of the LOA construct, eight hypotheses were stated concerning the existence (or degree) of correlation of any particular measure of LOA with other variables. In all cases the $P \leqq .05$ level is used as critical in the TANH.

The first seven of these predicted that a correlation exists, and the last (the logical opposite) predicted that no correlation exists. In the first seven, a total of 96 specific tests are available. In 75 of these, the predictions of positive correlations (or stability regarding the TANH) is confirmed. In 21 it is disconfirmed. A total of 88 coefficients are available to test Hypothesis (8), which holds that no correlation exists between LOA and variables not belonging to Predictions (1) through (7). In 62 of these, the prediction of no correlation is confirmed. In 26 it is disconfirmed.

In short, when a positive correlation is hypothesized there is an accuracy of about 78 percent. Conversely, when no correlation is hypothesized there is an accuracy of about 70 percent. While this is far from the efficiency that might be hoped for, it nonetheless demonstrates that LOA is a construct having lawful and known relations to other variables. This is a clear, though imperfect, demonstration of the construct validity of LOA.

Some LOA instruments are doubtless poorer than others. This means that they show less correlation with a criterion and it may be that some of the disconfirmations of Hypotheses (1) through (7) are due to this fact. Specifically, a disproportionate number of apparent disconfirmations appear to come from studies using Strong's Occupational Level Scale. This suggests that the use of better LOA measures would have improved LOA's performance in the first seven hypotheses. But the excessively low correlation of non-LOA variables and the poorer LOA instruments should over-estimate the number of confirmations of Hypothesis (8). Evidently additional principles beyond those used in the first seven hypotheses are needed.

Although the evidence is not unambiguous, the bulk of it tends to support each of the hypotheses: 1. that LOA is a relatively good predictor of behavior toward its object (the evidence for this prediction is conflicting); 2. that LOA varies with the degree of success in school, a condition necessary for carrying high LOA's into action; 3. that LOA varies with the success orientations of the groups to which the person belongs; 4. that LOA varies with the degree to which the social situation tends to produce success in occupationally related areas of behavior; 5. that LOA varies with personal orientations tending to produce success in occupationally related areas of behavior; 6. that LOA varies with personal orientations expressing willingness to act independently; and 7. that LOA is related to self-conceptions concerning success or achievement orientation. As shown by the existence of correlation where none was predicted, LOA is evidently related to one or more other factors. But the exact nature of these is not clear.

This chapter has shown by empirical means that LOA is a valid concept in the sense that its behavior is lawful. This, in turn shows that a reliable, valid and practicable LOA instrument would be useful. Chapter II showed that the theory of LOA may be of importance to the behavioral sciences, especially to social mobility, education, and related areas. Chapter III showed that no existing LOA instrument is reliable, valid and practicable, although some instruments have some of these characteristics. Together these findings point to the need for an LOA instrument which has all three of the above characteristics. Succeeding chapters will present the Occupational Aspiration Scale, a scale designed to meet the above requirements, and will present data evaluating the scale.

CHAPTER V

DESIGN OF THE OCCUPATIONAL ASPIRATION SCALE

Preceding chapters have attempted to show several things about the concept of level of occupational aspiration. 1. Logically, it occupies a central place in the behavioral sciences, especially as regards theory of level of aspiration and attitudes, and as regards research on individual socialization and on individual movement in a social system (or social mobility). This was shown in Chapter II. 2. Empirically, available evidence tends to support much of the theory, especially as regards the occupational and educational consequences, and the psychological and social situational antecedents of differential levels of occupational aspiration. This is shown in Chapter IV. 3. This latter outcome is somewhat surprising in view of gross inadequacies of existing instruments for measuring the concept. As has been shown, the present techniques for measuring LOA either utilize only parts of the general level of aspiration theory, or use only single stimulus questions, or are based on inaccurate assumptions about the occupational hierarchy, or have too high an attrition rate and are too unwieldy to meet practical purposes. There are other difficulties, too. Instruments previous to the OAS have the following deficiencies. Several lack a high degree of either theoretical or empirical validity, or their validity is untested. Second, several are probably unreliable in terms of internal consistency or stability or both; in point of fact the reliability of these instruments is uaually untested and in some cases it is untestable. Third, the best of the instruments available today is not practical because it is too tedious to administer and score and because the subjects are often unable to respond to it in terms which are relevant to LOA. All this was shown in Chapter III.

In brief, both the theory of LOA and the data available concerning its correlates show it to be a variable of considerable promise in explaining differential educational and occupational achievement. It follows that the variable could have practical importance to those concerned with educational achievement, vocational and educational counseling, and social mobility. But present techniques for measuring LOA are not adequate to the task.

The Occupational Aspiration Scale (OAS) was designed to measure LOA accurately and easily. In the present chapter we shall describe the design of this instrument. In the two succeeding chapters we shall present the results of the empirical evaluations which have been performed to date on the OAS.

General Description

The OAS is an eight item multiple-choice instrument. It includes items permitting responses at both the *realistic* and the *idealistic* expression levels of LOA, each at two goal-periods, called career periods in this context, *short range* (end of schooling) and *long range* (at age 30). The four possible combinations of these components are each assessed twice, thus giving a total of eight questions. The alternatives for each item consist of ten occupational titles drawn from among the ninety occupations ranked by the NORC (41) study of the prestige of occupations(see Table 1). Each occupation is presented as a possible response only once on the form. Alternative responses for each item systematically span the entire range of occupational prestige, and are scored from zero to nine. Operationally, an item score of 9 indicates that the respondent has chosen an occupation from among the eight highest prestige occupations on the NORC scale, and an item score of 0 indicates that one of the eight lowest prestige occupations has been chosen. Thus, the total possible score for all eight items ranges from zero to 72. This score is used to measure the individual's general LOA. It is designed, not as an absolute measure of LOA, but only as a measure of relative LOA. It is primarily for use on male high school students. (It is the belief of the writers that it may work well with females as well as with males, at this or younger ages, but this belief has yet to be demonstrated.) Thus, the level and range of difficulty of the test items is oriented to male subjects of this age and educational status. The OAS is a self-descriptive instrument. It is easily administered in a group testing situation, but it may also be administered individually.

Historical Development

A research project conducted by Sewell and others on youth in Jefferson County, Wisconsin, was especially influential on the design of the OAS.[14] This project investigated the educational and occupational plans and achievements of high-school youth. Some 50-odd personality, performance, and social-situational variables were assessed on a sample of high school juniors and seniors in 1948. Seven years later, in 1955, the post-high school levels of educational and occupational achievement of these individuals were determined. The measurement of

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[14] Sewell, W. H. (unpublished data, 1955).

TABLE 1--Summary of the relation between the NORC occupational prestige scores and the OAS format

NORC rankings			OAS		
	Occupation	Score	Item	Question	Score
1)	U.S. Supreme Court Justice	96	1	R-S	9
2)	Physician	93	2	I-S	9
3)	State Governor	93	3	R-S	9
4)	Cabinet Member in Federal Government	92	4	I-S	9
5)	Diplomat in U.S. Foreign Service	92	5	R-L	9
6)	Mayor of a large city	90	6	I-L	9
7)	College Professor	89	7	R-L	9
8)	Scientist	89	8	I-L	9
9)	U.S. Representative in Congress	89	1	R-S	8
10)	Banker	88	2	I-S	8
11)	(Government Scientist) (a)	88	.	...	.
12)	County Judge	87	3	R-S	8
13)	Head of a department in a state government	87	4	I-S	8
14)	Minister (or) (b)	87	5	R-L	8
15)	Priest	86			
16)	Architect	86	6	I-L	8
17)	Chemist	86	7	R-L	8
18)	Dentist	86	8	I-L	8
19)	Lawyer	86	1	R-S	7
20)	Member of the board of directors of a large corporation	86	2	I-S	7
21)	Nuclear physicist	86	3	R-S	7
22)	Psychologist	85	4	I-S	7
23)	Civil engineer	84	5	R-L	7
24)	Airline pilot	83	6	I-L	7
25)	Artist who paints pictures that are exhibited in galleries	83	7	R-L	7
26)	Owner of a factory that employs about 100 people	82	8	I-L	7
27)	Sociologist	82	1	R-S	6
28)	Accountant for a large business	81	2	I-S	6
29)	Biologist	81	3	R-S	6
30)	Musician in a symphony orchestra	81	4	I-S	6
31)	Author of novels	80	5	R-L	6
32)	Captain in the army	80	6	I-L	6
33)	Building contractor	79	7	R-L	6
34)	(Economist) (a)	79	.	...	.
35)	(Instructor in the public schools) (a)	79	.	...	.
36)	Public school teacher	78	8	I-L	6

(a) Titles in parentheses not used in the OAS.
(b) Both are combined as a single alternative in the OAS.

TABLE 1--Continued

NORC rankings			OAS		
	Occupation	Score	Item	Question	Score
37)	County agricultural agent	77	1	R-S	5
38)	Railroad engineer	77	2	I-S	5
39)	(Farm owner and operator) (a)	76	.	...	.
40)	Official of an international labor union	75	3	R-S	5
41)	Radio announcer	75	4	I-S	5
42)	Newspaper columnist	74	5	R-L	5
43)	Owner-operator of a printing shop	74	6	I-L	5
44)	Electrician	73	7	R-L	5
45)	Trained machinist	73	8	I-L	5
46)	Welfare worker for a city government	73	1	R-S	4
47)	Undertaker	72	2	I-S	4
48)	Reporter on a daily newspaper	71	3	R-S	4
49)	Manager of a small store in a city	69	4	I-S	4
50)	Bookkeeper	68	5	R-L	4
51)	Insurance agent	68	6	I-L	4
52)	(Tenant farmer--one who owns livestock and machinery and manages the farm) (a)	68	.	...	.
53)	Traveling salesman for a wholesale concern	68	7	R-L	4
54)	Playground director	67	8	I-L	4
55)	Policeman	67	1	R-S	3
56)	Railroad conductor	67	2	I-S	3
57)	Mail carrier	66	3	R-S	3
58)	Carpenter	65	4	I-S	3
59)	(Automobile repairman) (a)	63	.	...	.
60)	Plumber	63	5	R-L	3
61)	Garage mechanic	62	6	I-L	3
62)	Local official of a labor union	62	7	R-L	3
63)	Owner-operator of a lunch stand	62	8	I-L	3
64)	Corporal in the army	60	1	R-S	2
65)	Machine operator in a factory	60	2	I-S	2
66)	Barber	59	3	R-S	2
67)	Clerk in a store	58	4	I-S	2
68)	(Fisherman who owns his own boat) (a)	58	.	...	.
69)	Streetcar motorman	58	5	R-L	2
70)	Milk route man	54	6	I-L	2
71)	(Restaurant cook) (a)	54	.	...	.
72)	Truck driver	54	7	R-L	2
73)	Lumberjack	53	8	I-L	2

(a) Not used in the OAS.

TABLE 1--Concluded

NORC rankings		OAS		
Occupation	Score	Item	Question	Score
74) Filling station attendant	52	1	R-S	1
75) Singer in a night club	52	2	I-S	1
76) Farm hand	50	3	R-S	1
77) Coal miner	49	4	I-S	1
78) Taxi driver	49	5	R-L	1
79) Railroad section hand	48	6	I-L	1
80) Restaurant worker	48	7	R-L	1
81) Dock worker	47	8	I-L	1
82) Night watchman	47	1	R-S	0
83) Clothes presser in a laundry	46	2	I-S	0
84) Soda fountain clerk	45	3	R-S	0
85) (Bartender) (a)	44	.	...	.
86) Janitor	44	4	I-S	0
87) Share cropper--one who owns no livestock or equipment and does not manage farm	40	5	R-L	0
88) Garbage collector	35	6	I-L	0
89) Street sweeper	34	7	R-L	0
90) Shoe shiner	33	8	I-L	0

(a) Not used in the OAS.

LOA based on North-Hatt scores (see pp. 18-20) was found to be the best single 1948 predictor both of number of years completed at college (r=.52) and the prestige level of occupational achievement attained by 1955 (r=.46). The correlations of the other variables with educational and occupational achievement were lower. The more important of these and their correlation with educational and occupational achievement are: college plans (.40, .17), high school grade point averages (.41, .34), Level of Interest section of the Lee-Thorpe scale (.38, .17), Henmon-Nelson mental maturity scores (.32, .20), and parental socio-economic (Sewell scale) status scores (.28, .28).[15]

The measure of LOA on which these correlations are based, it will be remembered, was an index composed of the first orthogonal factor in a matrix of correlations of the North-Hatt prestige levels of the highest, lowest, free, and final occupational choices of the students. This study provides evidence that long-range ("10 years from now") occupational goals are important when attempting to effectively measure level of occupational aspiration at the high school level.

As we have noted, however, the North-Hatt technique has several disadvantages. (1) Considerable time and effort is involved in scoring responses. (2) Subjects frequently fail to respond. (3) Many responses are not specific enough to score. (4) Since only a small proportion of the total occupational titles have been empirically ranked, the prestige of most occupations is difficult to estimate.

The results of the Jefferson County study, and the problems encountered in attempting to measure LOA, led to the development of the OAS. It was designed to measure the LOA variable presumably assessed by the Jefferson County instrument while avoiding the problems encountered in the coding of free-responses.

(A copy of the OAS is included in Appendix I.)

Relation to the General Concept of Level of Aspiration

Expression Levels and Goal-Periods

The wording of the stimulus-questions of the OAS in terms of expression levels and goal-periods is presented in Table 2. The wordings are intended as occupational applications of the two dimensions which provide estimates of the boundaries of the range of the person's level of aspiration. Thus the wordings flow directly from general level of aspiration theory. Each stimulus question specifies both an expression level and a goal-period, and all four possible combinations of expression levels and goal-periods are used to form the stimulus questions. The same stimulus question is presented twice.

The numbers in parentheses in Table 2 refer to the sequence of the items using the four types of questions. The letters in parentheses refer to the expression levels and goal-periods of the questions. Thus, the questions are presented in the following sequence: Question 1, realistic--short-range ("...which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER?"); Question 2, idealistic--short-range ("...which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER?"); Question 3, realistic--short-range (same as Question 1); Question 4, idealistic--short-range (same as Question 2); Question 5, realistic--long-range ("...which is the BEST ONE you are REALLY SURE YOU CAN HAVE by the time you are 30 YEARS OLD?"); Question 6,

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[15] Some of these data are reported in Chapter IV.

TABLE 2--OAS format: Combination of expression levels and goal-periods for each of the four question-wordings

Expression levels	Goal-Periods	
	Short-range (S) (a)	Long-range (L) (b)
Idealistic (I)	Of the jobs listed in this question, which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER? (2 and 4)	Of the jobs listed in this que tion, which ONE would you choo to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished? (6 and 8)
Realistic (R)	Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER? (1 and 3)	Of the jobs listed in this que tion, which is the BEST ONE yo are REALLY SURE YOU CAN HAVE b the time you are 30 YEARS OLD? (5 and 7)

(a) Initial Career-Point.
(b) Mature Career-Point.

idealistic--long-range ("...which ONE would you choose to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished?"); Question 7, realistic--long-range (same as Question 5); and Question 8, idealistic--long-range (same as Question 6). This system permits eight different estimates of the person's LOA, two estimates for each combination of expression levels with goal-periods.

The Continuum of Difficulty

Chapter II showed that occupational prestige (or societal evaluation) is the best single criterion available today to rank occupational titles on a continuum of difficulty. By far the best study of the prestige of American occupations is the North-Hatt study (NORC, 41), reviewed in Chapter II. It is best because it is based on an adequate sample of the American adult population, it covers many occupations, and it includes occupations from the entire American occupational hierarchy. For this reason, the NORC occupations and their ratings were selected as the criterion on which to base the continuum of difficulty for the OAS. Each stimulus question of the OAS is followed by a set of 10 occupational titles, which are its response alternatives. Any one occupational title is presented as a response alternative only to one question. Using no occupational title more than once works to minimize the specific effects of non-prestige factors in assessing a person's pure LOA.

The occupational titles were systematically selected from the 90 occupations ranked by the NORC study (see Table 1). This selection was done in a way which makes sure that the response alternatives for each stimulus question span the entire range of the prestige hierarchy or continuum of difficulty. Ten of the 90 NORC occupations were eliminated in order to reduce the number of occupational responses to 80 (eight stimulus questions by 10 alternatives per question). Of the remainder, the highest prestige occupation was assigned to Question 1, the second highest to Question 2, and so on down to the 80th which was assigned to Question 8. Table 3 illustrates how this was done. While each set of alternatives does not span the same area of prestige ratings, they do tend to span almost the same range of occupational prestige. The equality of ranges is only approximated because several of the occupations in the NORC ratings have the same average prestige score.

TABLE 3--OAS format: Distribution of 80 NORC occupations among the OAS items.

80 NORC occupations	OAS items							
(High prestige)	1	2	3	4	5	6	7	8
1	9	.	.	.	.	.	.	.
2	.	9	.	.	.	.	.	.
3	.	.	9	.	.	.	.	.
4	.	.	.	9	.	.	.	.
5	.	.	.	.	9	.	.	.
6	.	.	.	.	.	9	.	.
7	.	.	.	.	.	.	9	.
8	.	.	.	.	.	.	.	9
:	:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:	:
73	0	.	.	.	.	.	.	.
74	.	0	.	.	.	.	.	.
75	.	.	0	.	.	.	.	.
76	.	.	.	0	.	.	.	.
77	.	.	.	.	0	.	.	.
78	.	.	.	.	.	0	.	.
79	.	.	.	.	.	.	0	.
80	.	.	.	.	.	.	.	0
(Low prestige)								

Ten of the 90 NORC occupations were not used in the OAS. The reasons for this differ. In the first place, several of the titles are clearly redundant and were included in the NORC study as a check on the reliability of the ratings. One of the redundant titles was eliminated from each such pair. Secondly, the titles "Minister" and "Priest" were combined as a single alternative "Minister or Priest." The reason for this is that if they were kept as separate alternatives, their selection would likely have a religious bias. Moreover, they have almost exactly the same NORC prestige score. Finally, the title "bartender" was excluded because evidence in the Jefferson County study indicated that the prestige of that "occupation" may be higher in the North Central States than in other areas.

On the OAS form the prestige ranks for each set of 10 alternatives were placed in a non-hierarchical distribution to insure that the order of presentation would not correspond to the order of prestige. Exactly the same order of presentation is used for each set of response alternatives.

Scoring

All of the eight items are scored in the same way. Table 4 illustrates the re-arrangement of prestige scores and the corresponding scores for each of the ten response alternatives. The scores of alternative responses for each stimulus question range from zero to nine. The sum of all eight items scores is taken as the individual's level of occupational aspiration as measured by the OAS. Thus, the total score obtainable on the OAS ranges from zero to seventy-two. A copy of the scoring key is included in Appendix I.

TABLE 4--Distribution of prestige scores of occupational titles for each OAS item

Order of presentation	Score
1	7
2	4
3	8
4	2
5	9
6	0
7	6
8	3
9	5
10	1

Administration

The OAS is intended to be administered in a group testing situation. The eight items are prefaced by a set of written instructions, which the tester reads over with the group at the beginning of the test period. These instructions and the first item are reproduced below:

THIS SET OF QUESTIONS CONCERNS YOUR INTEREST IN DIFFERENT KINDS OF JOBS. THERE ARE EIGHT QUESTIONS. EACH ONE ASKS YOU TO CHOOSE ONE JOB OUT OF TEN PRESENTED.

BE SURE YOUR NAME IS ON THE TOP OF THIS PAGE.

READ EACH QUESTION CAREFULLY. THEY ARE ALL DIFFERENT.

ANSWER EACH ONE THE BEST YOU CAN. DON'T OMIT ANY.

QUESTION 1. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER?

1.1 ____________ Lawyer
1.2 ____________ Welfare worker for a city government
1.3 ____________ United States representative in Congress
1.4 ____________ Corporal in the Army
1.5 ____________ United States Supreme Court Justice

1.6 __________ Night watchman
1.7 __________ Sociologist
1.8 __________ Policeman
1.9 __________ County agricultural agent
1.10 __________ Filling station attendant

It is emphasized that there are no "right" or "wrong" answers, and that the respondents are not bound by a time limit. It has been suggested to the writers that the OAS is most successfully administered to children if the first two questions are read out loud so that they grasp what they are expected to do on each question, and so that they learn that the questions and their response alternatives really are different from each other. Any questions concerning the purpose of the test are answered by stating that the investigators are interested in the respondents' feelings about various kinds of jobs. The meaning of various occupational titles is not described to the respondents should they request this during the administration of the OAS. Instead they are to impute to the titles whatever meanings they have for them. Respondents are not allowed any additional information whatsoever on the meaning of either the questions or the response alternatives. The terms BEST ONE, SURE I CAN GET, etc., are all defined by the respondents, as are the occupational titles. Ignorance of part of the occupational structure is a factor which may well limit the person's range of choice; if he does not know the meaning of a certain job title, this fact will be and should be reflected in his OAS score. Testers are sometimes concerned because some of the respondents feel they need more information, but the semi-projective nature of the OAS requires that the tester give no information beyond that which is specified. In brief, if the respondents state that they are having difficulty with selecting an occupational alternative for any question, they are simply told to do the best they can, leaving the testing situation as unstructured as possible.

Time in Administration and Scoring

The OAS has been administered to perhaps 20 different groups in the United States, about 10 groups in Japan and four groups in Central America; and it has been given in the corresponding languages, English, Japanese, and Spanish. In Michigan, the form has been given to male and female students ranging from fifth grade children of working class fathers to college freshmen, and to persons having a wide but more or less normal range of intelligence. Almost every administration has been conducted in school. It has been administered by skilled and unskilled persons. This information is presented to show the fairly wide basis on which testing and scoring time is estimated.

Exact records of the time have not been kept, but those who have administered the form generally agree that it takes from 5 to 10 minutes for the tester to give the instructions and answer questions, and from 5 to 15 minutes for students to fill it out. Slow readers, young students and persons from societies where objective tests are unknown may take a few minutes longer. Most of the Michigan high school students who have filled it out seem to finish easily within 15 minutes or less; testers have usually allowed a total instruction and response time of 30 minutes.

The form may be scored in one or two minutes. College students and literate adults may be trained to score the form in about 5 or 10 minutes.

It should be emphasized that these data are not based on exact measurements of the timing. Ultimately such measurements should be made and reported. However, the estimates given above are probably accurate enough for most purposes. If anything, they probably err by overestimating the time, rather than by underestimating it.

Critique of the OAS Design

Fakability

Data on the fakability of the OAS are not available. But there is little doubt that it can be faked if the respondent is alert and if he wants to do so. It is our impression, however, that very few respondents are motivated to misrepresent themselves to a degree which would substantially invalidate the scores. As the data in the succeeding chapters show, this impression is probably well-founded.[16]

Unbalanced Response Alternatives

The response alternatives were chosen by putting the highest North-Hatt prestige occupation in the first set, the second in the second set, etc. This means that the mean North-Hatt prestige scores of the response alternatives to question (1) are slightly higher than those of question (2), etc. That is, $\bar{X}_1 > \bar{X}_2 > \bar{X}_3 > \ldots > \bar{X}_8$. (Naturally, the means of *responses* persons make to the alternatives follow a quite different pattern. We refer here to the means of the *alternatives* presented to persons, quite apart from their responses to the alternatives.) This fact is obscured by our scoring technique, which gives a superficial impression that $\bar{X}_1 = \bar{X}_2 = \bar{X}_3 = \ldots = \bar{X}_8$. The stimulus questions tap the combination of expression-levels and time-dimension periods as follows: Q_1 and Q_3, realistic--short-range (RS); Q_2 and Q_4, idealistic--short-range (IS); Q_5 and Q_7, realistic--long-range (RL); Q_6 and Q_8, idealistic--long-range (IL). Given the present arrangement of response-alternatives, it follows that in the design of the OAS $\bar{X}_{R-S} > \bar{X}_{I-S} > \bar{X}_{R-L} > \bar{X}_{I-L}$. Paralleling the terminology in Chapter III we may say that in its present form, the OAS has unbalanced response alternatives. This probably influences the validity of the responses to some degree. It cannot affect it to any substantial degree, however, otherwise its influence would be evident in the empirical analysis which follows. But it certainly makes the OAS less elegant than it might be.

This slight imperfection could easily be overcome by changing the assignment of sets of response alternatives to stimulus questions. One appropriate change would be to assign response alternatives (1) and (8) to Q_1 and Q_3, response alternatives (2) and (7) to Q_2 and Q_4, response alternatives (3) and (6) to Q_5 and Q_7, and response alternatives (4) and (5) to Q_6 and Q_8. This would make equal the mean of response alternatives for the sum of each combination of expression levels and time-dimension periods, as follows: $\bar{X}_{R-S} = \bar{X}_{I-S} = \bar{X}_{R-L} = \bar{X}_{I-L}$.

Error Due to Response Sets

When a person's responses to later questions are controlled by the way he responded to the first questions, rather than by the meaning of the questions, it is said that he has developed a "response set" which biases his score. The OAS may be subject to this difficulty, although there is no evidence concerning it. This possible difficulty may be simply remedied by randomizing in the order of presentation of response alternatives.

Summary

In the terms used in Chapter III, the OAS is a direct, continuous, multiple-item, structured response, complete, and balanced stimulus-question instrument. It is rapidly administered. It includes question-wording at the idealistic and realistic expression levels as well as at the short-range and long-range time-dimension periods. The criterion for scoring responses to the occupational alternatives is based on an objective and relatively unbiased set of occupational prestige ranks over the full range of prestige. This means that the OAS meets the requirements for measuring LOA as a special case of the general concept level of aspiration. There are at least three minor criticisms of the OAS: it is probably fakable, its response alternatives are unbalanced, and it may be subject to bias due to response sets: These difficulties should be corrected in future editions.

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[16] See p. 78 for a suggestion for devising an unfakable modification of the OAS.

CHAPTER VI

INTERNAL CHARACTERISTICS OF THE OCCUPATIONAL ASPIRATION SCALE

This chapter reports the results of research completed to date on the internal characteristics of the OAS. First, the samples and data upon which the analyses were based are described. Second, highly tentative norms, based on the most extensive of these samples, are presented. Third, all data available on the reliability of the OAS are reported. Fourth, the most nearly direct data available on the validity of the OAS are reported. It should be emphasized that definitive evidence on the predictive validity of the OAS will not become available until the subjects of the samples have finished their education and have established themselves in their occupations. Data available at present permit only indirect approaches to assessing the validity of the instrument. Chapter VII, too, addresses itself to indirect assessment of validity of the OAS. It differs from the present chapter in that it uses external criteria in much the same way as Chapter IV did for the LOA concept.

Sites, Subjects and Data

The Lenawee County Site

Most of the data presented in this monograph were collected from the male students in the Lenawee County, Michigan, school system during the spring of 1957. Lenawee County is located near the extreme southeastern corner of the state. Its southern boundary is the Michigan-Ohio state border. It is rectangular in shape, being about 24 miles from north to south, and 30 miles from east to west--a total of about 720 square miles. The county lies in a rich area of various kinds of agricultural specialties, from corn-growing to beef-feeding to truck-gardening. Nevertheless, it is by no means an isolated area. Its geographical center, Adrian, is about 55 miles southwest of downtown Detroit (1960 population about 1,850,000), 30 miles northwest of downtown Toledo, Ohio (1960 population about 300,000), 30 miles southwest of Ann Arbor (1960 population about 65,000), and 30 miles southeast of Jackson (1960 population about 50,000). The county is served by excellent roads. Practically all incorporated places are linked to each other and to surrounding cities and towns by paved highways, and all-weather roads are readily accessible to almost every home in the county. Besides its agriculture, the county had, in 1957, a flourishing light industry.

Excellent educational facilities are available to county residents. This is especially true at the upper levels. Detroit, Toledo, Ann Arbor and Ypsilanti (a small city about 35 miles northeast of Adrian) each are sites of one or more universities. These vary in quality and in cost. There are also several small colleges within commuting distance of various parts of the county. One of these is in Adrian. The high schools also vary in quality but there is little reason to believe that any of them are of poor quality. Adrian has two high schools.

One is a large public school and the other is a small Catholic school. These and all other schools in the county draw at least some students from the surrounding open country areas. All but one of the incorporated places have high schools serving the children and youth from the town and from the surrounding countryside. The names of the towns with high schools, and their populations as estimated in the preliminary reports of the 1960 United States Census, are: Tecumseh (7,008), Blissfield (2,660), Hudson (2,531), Morenci (2,201), Clinton (1,467), Deerfield (860), Britton (617), Addison (568) and Onsted (540). An additional high school is located at Sand Creek, an unincorporated hamlet. There is no high school in Clayton (470). Cement City is partly in Lenawee County and has a high school, but it was not included in the sample because most of its population, including those of high school age, reside in another county. (This town was used as the site for pre-testing the questionnaires.) The rough outlines of the county's stratification system are about what one would expect by knowing its size and its economy. It has a full range of social class levels: a few wealthy families, a number of families of professionals, many families of small business owners, and many families of farmers, clerical, skilled and unskilled workers.

Lenawee County Subjects

The subjects consisted of the 442 seventeen-year-old boys in the county's schools in the spring of 1957. This age group, specifically defined as those born between July 1, 1939 and June 30, 1940, was selected to maximize the likelihood that the boys would be concerned with their educational and occupational futures. Most of those no longer attending school, about 12 percent of the total age group, had taken full time jobs. All who were not in school were excluded. Their experience with the world of work was qualitatively different than the experience of those in school. Girls were excluded because the OAS was not specifically designed for them. (The OAS responses and the relation of these to other aspects of behavior of persons other than those for whom the test was originally intended should be studied at a future date.)

Lenawee County Data

In addition to the OAS, the following instruments were also administered to the Lenawee sample at the same time:

1. The 16 Personality Factor Test, Form B (Institute for Personality and Adjustment Testing, 27), (Abbr.: 16 P-F T).

2. Test of G--Culture Free-Scale 3A (Cattell and Cattell, 6), (Abbr.: CFIQT).

3. The California Test of Personality (Tiegs, et al., 62), (Abbr.: CTP).

4. The MSU Work Beliefs Check-List, (Abbr.: WBC-L).

5. A questionnaire, entitled Occupational Plans of Michigan Youth, concerning educational plans, occupational aspirations, family data, sociometric questions, and related personal data. (Abbr.: OPMY).

The unpublished instruments (4) and (5) are presented in Appendix II. (See Haller, 22, cited in References, for the complete copies of all forms). All of the Lenawee data used in this monograph were converted to normalized T-score form (Edwards, 13). (As it happens, the OAS data are approximately normally distributed anyway). All data were punched on IBM cards in preparation for machine analysis. School records for the year 1956-57 were reproduced to provide a basis for estimates of grade-point averages and course programs. Operational definitions of all variables may be found by referring to the above instruments. Means, standard deviations and intercorrelations of all important variables are presented in Appendix I.

The Mason Site, Sample and Data

The OAS was also administered to a group of junior and senior high school boys in Mason, Michigan, (1960 population, U.S. census preliminary estimates, 4,490) during the winter of 1958-1959 at two different times about 10 weeks apart. Different but equivalent forms were used for the pre-tests. The initial size of this sample was 117, with a usable N of 114. The size of the sample was reduced to 85 at the second testing, due primarily to absences from school. The Mason sample was selected for the test-retest reliability analysis of the OAS, using two different forms of the OAS (to be explained below). It was chosen because the ecological area and the characteristics of the respondents were roughly similar to those of the Lenawee sample. Mason, like Lenawee County, is situated in the urban half of southern Michigan. It is about a dozen miles from Lansing, an industrial center of 108,000 persons. But Mason's immediate surroundings are agricultural. It also has a little light industry. The subjects thus include both rural and urban residents, and are from a range of social class levels. The raw scores of the Mason OAS data are approximately normally distributed, and they were not converted to normalized T-score form. The Mason data were punched on IBM cards for machine analysis.

Non-Response Rate

The OAS is quite easy to answer. Non-response rates, incomplete response rates, and unusable response rates together are less than one percent in the group administrations conducted on the above and other samples. This is at least as low as any other technique, and is much lower than the most valid of other techniques. The latter, the North-Hatt technique used in the Jefferson and Lenawee Counties, has an unusable and non-response rate of 17 to 25 percent.

Norms

Little normative data are available at this time. The reasons for this are three. First, norms are most useful for counseling purposes. At this stage of the evaluation of the OAS the greatest need is for detailed analysis of its general characteristics such as reliability, validity, and correlates. The attention of the investigators has, therefore, been directed to research evaluating the instrument rather than to compiling norms. Second, broad norms are often misleading in that the unwary user may assume that they are based on probability samples drawn from a homogeneous population. This is not often the case, however, because probability samples, and even their cheaper substitutes, are quite difficult to obtain. Third, many believe that each testing unit should develop its own set of norms for its own particular purposes.

Nevertheless, the OAS scores for the 442 Lenawee County boys who completed this and other instruments were normalized and converted to T-score form. The distribution of raw scores, percentiles, and T-scores are presented in Appendix I. The observed total scores range from 2 to 65, with a mean of 36.20 and a standard deviation of 12.99. The distribution of total OAS scores appears to be approximately normal in shape and spans most of the range of the total possible scores of the OAS. The same form of the OAS, administered to the Mason subjects the first time they were tested, yields a mean and standard deviation of 37.24 and

11.70 respectively. An alternate form of the OAS, form Y, was used in the post-test administration for the test-retest reliability study on the Mason sample. The latter form (which will be described in the following section dealing with the reliability study) has a mean of 37.63 and a standard deviation of 11.90. Table 5 summarizes the descriptive statistics for both forms of the OAS administered to the two samples. The table shows that the various means and standard deviations are quite close.

TABLE 5--Descriptive statistics for the OAS (a)

Sample	Form	Mean	SD	Range	SE_m
Lenawee N = 441........	X	36.20	12.99	63(2-65)	0.62
Mason pretest N = 114..	X	37.24	11.70	46(17-63)	1.10
Mason post-test N = 94.	Y	37.63	11.90	53(13-66)	1.23

(a) SD = standard deviation, SE_m = standard error of mean.

Reliability

We have taken the discussion of reliability in Technical Recommendations for Psychological Tests and Diagnostic Techniques (60, pp. 28 ff.) as a guide for the terminology and procedure of this section. This manual distinguishes three types of reliability coefficients:

1) Coefficient of internal consistency: "We shall refer to a measure based on internal analysis of data obtained on a single trial of a test as a coefficient of internal consistency."

2) Coefficient of equivalence: "A correlation between scores from two forms given at essentially the same time we shall refer to as a coefficient of equivalence."

3) Coefficient of stability: "The correlation between test and retest, with an intervening period of time, is a coefficient of stability. Such a coefficient is also obtained when two forms of the test are given with an intervening period of time."

The two reliability analyses proposed for the OAS are based on coefficients of internal consistency and stability. The design of the OAS makes inappropriate the most common techniques for measuring these types of reliability. Appropriate techniques and the reasons why they are needed will be specified in the next paragraphs.

Equivalent Halves

If the OAS items were divided by the odd-even technique, one-half of the test would consist of all the realistic items and the other half would consist of all the idealistic items. These expression levels have been thought to have a low correlation with each other. If this were true (an hypothesis to be tested later), an odd-even division would automatically and unfairly show a low reliabilit estimate. The present analysis divides the items on a different basis, one which remains true to the "spirit" of the odd-even technique while eliminating the possible error due to the supposed low correlation between realistic and idealistic expression levels. Each of the four types of question wordings in the OAS is assessed twice. Thus, it is reasonable to split the OAS into two parallel halves, each of which contains all of the four possible question wordings. Both form X and form Y, (to be described below) were split by this method, which is outlined in Table 6. Thus the stimulus questions of the two halves are identical. The response alternatives, however, are not identical, but they are as close to identical as it is possible for them to be. For each individual, the sum of scores for items 1, 2, 5, 6 represents the score on the "A" half of the OAS, while the sum of scores for items 3, 4, 7, 8 represents the score on the "B" half of the OAS. All estimates of internal consistency coefficients are based on these scores. Coefficients of internal consistency of the OAS were computed for the Lenawee sample and for both forms administered to the Mason sample.

TABLE 6--Format for dividing the OAS into two parallel halves

Content assessed	OAS halves and item numbers	
	A half	B half
Realistic--Short-Range.......	1	3
Idealistic--Short-Range......	2	4
Realistic--Long-Range........	5	7
Idealistic--Long-Range.......	6	8

Equivalent Forms

A final characteristic of the OAS dictates a slight modification of the usual method for assessing stability. Alternate form Y, which has been mentione before, was developed to take this characteristic into account. (Form X is the name given to the original form which has been described in Chapter V.) The OAS has only eight items and eight corresponding sets of response alternatives. If the same form were administered to the same group with a period of only a few months intervening, it is highly probable that memory of previous responses would spuriously inflate the test-retest reliability correlation. This suggests the need for a different set of response alternatives. But these are not available. The OAS (Form X) uses eighty of the original ninety NORC (41) titles, and no comparable study of occupational prestige exists in the literature, much less one which provides prestige ranks for eighty other occupational titles. For this reason it is impossible to construct an equivalent form of the OAS which would be based on different but equivalent occupational titles. Instead, the following procedure was used to develop the alternate form (form Y) which reduces the effect of memory on the retest responses, and which tends to insure that both forms share a maximum degree of content similarity.

Form Y of the OAS uses exactly the same stimulus questions and response alternatives as does form X. It differs from Form X only in that no particular stimulus question has the same particular set of response alternatives as it had on form X. Table 7 presents the rearrangement of stimulus questions and response alternatives. The sets of response alternatives are lettered from A to H in order of their appearance on form X. Thus, form Y has the same general organization as does form X. The two forms differ only in that the alternatives which appear with item one in form X appear with item eight in form Y, and so on until the alternatives which appear with item eight in form X appear with item one in form Y. Form X is presented in Appendix I.

TABLE 7--Order of response alternatives for forms X and Y of the OAS, by stimulus question content

Sets of response alternatives (in order of appearance on form X)	Stimulus Question Content			
	Realistic short-range	Idealistic short-range	Realistic long-range	Idealistic long-range
	Form (letter) and order (number) of response alternatives			
A.................	X1	..	..	Y8
B.................	..	X2	Y7	..
C.................	X3	..	..	Y6
D.................	..	X4	Y5	..
E.................	..	Y4	X5	..
F.................	Y3	..	..	X6
G.................	..	Y2	X7	..
H.................	Y1	..	..	X8

Selected Descriptive Statistics of Equivalent Halves and Forms

The crucial datum in assessing reliability is the reliability coefficient, or statistic which estimates the degree to which two attempts to score persons on a test result in a similar ordering of persons. But there are other data which are often useful for understanding the meaning of the reliability data. They include such statistics as means, standard deviations, standard errors, and the like. These data for the equivalent halves are presented in Table 8. (The size of the Lenawee County sample was reduced to 365 and that of Mason to 85 due to technical problems.[17]) In general, the table shows that for each sample the two halves have approximately the same means, standard deviations, and standard errors of the means. The differences between samples in the size of the standard error of the mean are due mostly to differences in sample sizes.

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[17] The reliability data for the Lenawee sample were calculated together with a number of other variables. Although there are 441 persons for whom OAS forms are complete, many lack data on the other variables. Thus missing data on other variables resulted in a reduced sample size for these tests. Only 85 persons in the Mason samples responded to all OAS items on both forms. Most of this attrition is due to absence from school. But the effects of this attrition on the reliability estimates is probably inconsequential.

TABLE 8--Selected statistics for equivalent halves of the OAS. Lenawee and Mason samples

Statistic	Sample, form, and half					
	Lenawee		Mason			
	X		X		Y	
	A	B	A	B	A	B
Mean..........	18.11	17.95	17.69	17.98	19.68	18.46
SD............	6.73	6.81	6.39	6.40	6.10	6.66
SE_m..........	0.35	0.36	0.69	0.69	0.66	0.72
N.............	365	365	85	85	85	85
SE_{md}.........	0.28		0.52		0.62	
t.............	0.57		0.56		1.97	
d.f...........	364		84		84	
P.............	>.05		>.05		>.05	

In addition, two types of hypotheses were tested: that of equality of variances of each pair of halves, and that of equality of means of each pair of halves. An *F* test[18] was used on the former and a *t* test[19] was used on the latter. The null hypothesis must be accepted for both types of tests. The general conclusion to be drawn is that the two halves of the OAS are quite similar in means, standard deviations, and related data.

The same analysis was applied to the means and variances of Forms X and Y administered to the Mason sample. The total scores of eighty-five individuals who had completed both forms of the OAS were included in this analysis. Table 9 presents the means, standard deviations, and standard error of the means for each of the two forms of the OAS.

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[18] In evaluating the difference between two means by the *t* test, it is implicitly assumed that the population variances from which the samples are drawn are equal. See Edwards (13), pp. 271-273. The test for homogeneity of two variances is based upon the distribution of *F*:

$F = \frac{SD_1^2}{SD_2^2}$, where SD_1^2 is the larger of two independent estimates of the assumed common population variance and SD_2^2 is the smaller.

[19] See Edwards (13), pp. 246-254 and p. 278 ff. The standard error of the difference between the means of paired observations is given by:

$SE_{md} = \sqrt{SE_{m1}^2 + SE_{m2}^2 - 2\, r\, SE_{m1}\, SE_{m2}}$, where:
SE_{m1} = the standard error of mean 1
SE_{m2} = the standard error of mean 2
r = The correlation coefficient between the pairs of observations, and:

$SE_m = \frac{SD}{\sqrt{n}}$, where SD = the estimated standard deviation of the population
n = number of observations

For the *t* test, $t = \frac{M1 - M2}{SE_{md}}$ with n - 1 degrees of freedom (d.f.), where n = number of paired observations.

TABLE 9--Means, standard deviations, standard error of the means, and standard error of mean difference for two forms of the OAS based on the total score. Mason sample only

Statistic	OAS forms X	OAS forms Y
Mean.....	35.67	38.14
SD.......	11.87	11.41
SE_m......	1.66	1.53
N........	85	85
SE_{md}(a)..	0.86	
	t = 2.87 d.f. = 84 P < .01	

(a) SE_{md} = Standard Error of Mean Difference.

An *F* test for the significance of the difference between the variances of each form indicates that it is not significant at the .05 level. However, a *t* test for the significance of the difference between the means indicates that the null hypothesis of no significant difference must be rejected at the .01 level.

In summary, the two halves of the OAS for both forms and on both samples appear to be more or less equivalent in terms of the means and variances. There is an important exception to this, however. The two forms of the OAS administered to the Mason sample approximately ten weeks apart, while equivalent in terms of the variance of their total scores, are not equivalent in terms of the mean of their total scores. Form Y, used in the post-test, has a statistically significantly higher mean than does form X. This may be interpreted as meaning that the two forms are not equivalent. However, other conclusions are equally plausible. For one, the slightly higher mean on form Y may be simply a reflection of the so-called "practice effect" involved in retesting the same sample on the same trait.

Reliability of the OAS: Coefficients of Internal Consistency and Stability

The central data in reliability estimates are the reliability coefficients. Table 10 summarizes the results of the analyses. All coefficients were computed by the product-moment method. The split-half internal consistency coefficients obtained by correlating the equivalent-halves of the OAS were corrected by the Spearman-Brown Prophecy Formula. These are based on parallel halves. The test-retest or stability coefficient is based on equivalent forms.

An inspection of Table 10 shows that estimates of the reliability of the OAS range from .75 to .84. Although none of the coefficients are exceptionally high, they tend to fall within a narrow range of similarity and, taken as a group, yield a mean reliability estimate of about .80.[20]

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[20] Fisher's z transformation, properly used to average r values, was not used in this instance because the r values are nearly the same size.

N

Standard Errors of Measurement

The standard errors of measurement (SE_M) for each administration of the OAS are presented in the last column of Table 10. Since reliability coefficients are sensitive to relative ranks of individuals within the group under consideration and to the spread of scores of the group, they indicate the reliability of the test for that group. The standard error of measurement, however, is less sensitive to this variation since it takes into account both the reliability coefficient and the standard deviation for each group. Moreover, the SE_M is more useful in directly evaluating the OAS scores of individual respondents. It is, in short, an estimate of the variation of observed scores around the "true" score of the individual and as such indicates how large a margin of error should be allowed for in interpreting the OAS scores. Table 10 also shows that estimates of the SE_M for the administrations of the OAS range from values of 4.75 to 5.70 with the mean SE_M equal to 5.33.[21]

TABLE 10--Reliability coefficients (r_{tt}) and related data for the OAS

Form	Sample	SD(a)	Method	Coefficients (b)		SE_M
				r_{ab}	r_{tt}	
X.......	Lenawee (N = 365).	12.92	Parallel halves..........	69	82	5.48
X.......	Mason (N = 85)....	11.87	Parallel halves..........	72	84	4.75
Y.......	Mason (N = 85)....	11.41	Parallel halves..........	60	75	5.70
X and Y.	Mason (N = 85)....		Equivalent forms: Test-retest--10 week interval		77	

(a) Computed from the total score based on all eight OAS items.

(b) Decimal points omitted. All coefficients are positive and significant at the .01 point. The r_{tt} coefficients for the parallel halves were estimated from the Spearman-Brown Prophecy Formula:

$$r_{tt} = \frac{2r_{ab}}{1+r_{ab}}$$ where r_{ab} = correlation between the summed item scores of each half of the OAS. See Edwards (13), pp. 176-177.

Summary

The results of the reliability study of the OAS indicate that several independent analyses exhibit substantial agreement with respect to reliability coefficients and standard error of measurement. It seems reasonably safe to conclude that the reliability of the OAS is about .80 and that the standard error of measurement is close to 5.30. Moreover, the coefficient of stability (.77) measured over a 10-week interval agrees quite well with the coefficients of internal consistency (.75, .82, and .84).

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[21] The formula is: $SE_M = SD\sqrt{1-r_{tt}}$, where SD is the standard deviation of the obtained scores for a group and r_{tt} is the estimated reliability of the test for the same group. For a discussion of the meaning and uses of the SE_M, see Gulliksen (17), pp. 15 ff.

$$SE_M = \sqrt{\frac{(SE_{M_1})^2 + (SE_{M_2})^2 + (SE_{M_3})^2}{3}}$$

It is concluded that the OAS appears to be reliable enough for research purposes and for use in counseling individuals. However, the reliability coefficient tells us only that individuals tend to retain the same relative rank on the LOA variable in their group from one test situation to another. The standard error of measurement tells us more concerning observed individual variation. The SE_M estimates of the OAS suggest that classifying individuals into high, medium, and low LOA represents a fairly realistic appraisal of the accuracy of the OAS. Finer discriminations would only lead to an unjustified pseudo-precision.

Validity

The best method of measuring the validity of a device is to measure its correlation with the behavior it is supposed to predict. Unfortunately, such data are not available at this time. Several years must elapse before all of the first boys to take the OAS will have completed their education and military service, and will have stabilized their positions in the occupational hierarchy. For the present we must be content with other, more indirect, approaches to assessing the validity of the OAS. None of these yield a dependable coefficient of validity. Instead they tell us generally whether the OAS appears to be valid or does not appear to be valid. We shall approach these analyses in four general ways. The first three will be reported in this chapter because they are those closest to predictive validity, and the last will be reported in the next chapter. Of the former three, the first is the correlation with a free-response technique for measuring LOA, the second is concerned with the profiles of responses, and the third is a study of the factorial structure. The second and third approaches will be grouped together under the title "Internal Evidences of Validity." The data on factorial structure use information from the OAS and from the free-response instrument, treated separately and together.

Correlation with a Free-Response LOA Instrument

In chapters III and IV we have referred to another LOA instrument which was administered to the Lenawee sample. This instrument is almost identical to that used by Sewell and Haller in the Jefferson County study. (It was that instrument which was found to have a correlation of +.46 with North-Hatt prestige level of occupational achievement and a correlation of +.52 with number of years of college completed--both of the later data having been collected seven years after measuring the subjects' LOA.) The present free-response instrument differs from the last only in a few minor ways. (1) In the Jefferson County study the LOA was measured by a question including the words "10 years from now" while in Lenawee these words were replaced by "when I am thirty years old," so that the wording would parallel that of the OAS stimulus questions. (2) The Jefferson instrument included the Lee-Thorpe LI scores as one among several estimations of LOA contributing to the total score. In Lenawee the LI scale was dropped because the Jefferson study showed it to be almost uncorrelated with the other combination, the mean of the North-Hatt ratings. (3) The Lenawee free-response instrument's coding procedure is identical with that of the Wisconsin study,[22] except that the score is the mean of all different occupational choices listed by the subject in response to the various LOA stimulus questions. There are 365 persons for whom complete free-response LOA data are available.[23]

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[22] Responses were coded in terms of actual and estimated NORC ratings of occupational prestige. As in other research using NORC data, ratings of many occupational choices had to be guessed because they were not among those evaluated by the NORC sample.

[23] This is the sample on which the reliability analyses were based.

The product-moment correlation coefficient of this instrument with the OAS is $r = +.62$. This figure, an estimate of concurrent validity, is the only validity data available on the OAS. It shows that there is a substantial but far from perfect correlation between the OAS and the free-response technique based on NORC ratings. This free-response instrument is almost identical to the Jefferson County one which is known to have predictive validity. Such evidence is, however, at best only suggestive of the possibility that the OAS may be valid. There is no way of using the evidence decisively. Thus the OAS has a moderately high correlation with an instrument much like one which has a moderate correlation with the behavior it is supposed to predict. More indirectly, however, a study of Chapter IV will show that the free-response instruments used in Jefferson County and Lenawee County are probably the most accurate indicators of LOA in existence: their correlations with the criteria being predicted in the various hypotheses of the chapter are generally higher than are the correlations with other LOA instruments. So we can modify our previous statement this much: the OAS has a moderately high correlation with the best of the previous LOA instruments.

Internal Evidences of Validity

The analysis of the internal structure of the OAS involves two distinct conceptual problems. The first is that of the differential elevation of means in terms of specific expression levels and goal-periods. That is, generally speaking, idealistic LOA's are thought to be higher than realistic LOA's and long-range LOA's are thought to be higher than short-range LOA's. The second conceptual problem regarding the internal structure of the OAS is that of the factorial independence of each expression level and each time period. That is, some have seemed to suggest that there are several relatively independent "kinds" of LOA: e.g., idealistic vs. realistic, or long-range vs. short-range. The first problem will be handled in terms of profile analysis of the average item scores; the second problem will be treated in terms of orthogonal factor analyses.

The rationale of the profile analysis is simple. A profile will show whether the idealistic expression level scores tend to be higher than those of the realistic, and whether the long-range time-dimension scores tend to be higher than those of the short-range. The rationale for factor analysis is equally simple. If subsets of the items co-vary, they will be detected by factor analysis, and each subset may be assigned a name corresponding to the content common to all of the items of which it is composed. If more than one subset accounts for considerable variance, then it must be concluded that the OAS consists of more than one psychological variable. If only one subset accounts for much common variance, then it may be concluded that the OAS is a factorially pure instrument.

A. Profile analysis. General level of aspiration theory and research holds that, on the average, level of aspiration at the idealistic level is higher than level of aspiration at the realistic level, and similarly that level of aspiration in terms of long-range goals is higher than level of aspiration in terms of short-range goals. In the OAS, realistic (R) questions are designed to tap a lower limit of the respondent's LOA and idealistic (I) questions are designed to tap an upper limit of the respondent's LOA. Thus on the average, $R < I$. Moreover, the occupational achievement level of an individual is usually expected to rise to some extent during the first decade or so of his career. Thus we can predict that long-range (L) LOA should be on the average higher than short-range (S) LOA, or $S < L$. For the OAS items, specific tests of these hypotheses would be as follows:

$$\text{For } R < I\text{:}\quad \overline{X}_{RS} < \overline{X}_{IS} \text{ and } \overline{X}_{RL} < \overline{X}_{IL}$$

$$\text{For } S < L\text{:}\quad \overline{X}_{RS} < \overline{X}_{RL} \text{ and } \overline{X}_{IS} < \overline{X}_{IL}$$

Table 11 shows how well the obtained data fit these hypotheses. The data from form X administered to the Lenawee and Mason samples confirm both hypotheses. The Mason form Y data confirm the R < I hypothesis but contradict the S < L hypothesis. That is, for Mason form Y the mean of short-range goal items is higher than the mean of long-range goal items at both the realistic and idealistic levels. Statistical tests of these mean differences were not made for two reasons. First, there was evidence that the differences among the means of sets of response alternatives presented with each item tended to bias the response levels in the direction hypothesized. Second, the reversal of the S and L levels in the Mason form Y data appeared to be due to memory factors in the test-retest administration. More rigorous tests of the hypotheses of mean response elevations will be made with a revised form of the OAS now being developed.

TABLE 11--Elevation of OAS item means: Hypothesized vs. Obtained

Obtained: Sample and form	Hypothesized: For R < I		
	$\bar{X}_{RS} < \bar{X}_{IS}$	and	$\bar{X}_{RL} < \bar{X}_{IL}$
Lenawee (X).........	2.99 < 4.88		4.21 < 5.92
Mason (X).........	3.00 < 4.81		4.08 < 5.92
Mason (Y).........	4.79 < 5.49		4.16 < 4.69

Obtained: Sample and form	Hypothesized: For S < L		
	$\bar{X}_{RS} < \bar{X}_{RL}$	and	$\bar{X}_{IS} < \bar{X}_{IL}$
Lenawee (X).........	2.99 < 4.21		4.88 < 5.92
Mason (X).........	3.00 < 4.08		4.81 < 5.92
Mason (Y).........	4.79 > 4.16		5.42 > 4.69

It is concluded that there is a tendency for the two expression levels and goal-periods to produce predictably different profiles of response. As anticipated, the idealistic means are higher than realistic means. There is also a tendency for long-range means to be higher than short-range means, but the Mason post-test data show the opposite pattern. Probably some factor in form Y is producing the abberrant pattern, perhaps a memory effect from having previously taken form X or perhaps it is due to another factor such as the lack of balance in the response alternatives (see Chapter V). Later research should attempt to find out why this occurs.

B. Factorial Structure. The usual approaches to the factor analytic study of validity base their conclusions on the correlations of the items or sub-test scores of an instrument. This approach may be called the intra-instrument technique. Another approach is possible, however. If two instruments are each saturated with one main factor and if that factor is the same in both instruments, then the factor analysis of the correlation of all items (or sub-scales) of both instruments should show the existence of one factor. This may be called the inter-instrument technique. Both will be used in this section.

1. Intra-instrument technique. The OAS items for the Lenawee sample and for the Mason pre-test form X and post-test form Y of the OAS were intercorrelated and factor analyzed. The purpose of the factor analysis is to determine the factorial structure of the OAS. Several reasonable factor patterns are possible: 1. there might be four factors, one for each combination of expression levels and goal-periods; 2. there might be two factors, one for expression level and one for goal-periods; 3. there might be three factors, one for expression level, one for long-range and one for short-range; 4. or one for goal-periods, one for realistic level and the other for idealistic level; 5. there might be one main LOA factor saturating all questions. There might also be any one of these patterns and some unanticipated patterns, or there might be a completely unanticipated pattern. In any case, there are available three different applications of the OAS, including two different forms administered to one sample, on which to base conclusions about the factorial structure of the test. A conclusion will be drawn only if it is supported by all three of the resulting factor analyses.

For the Lenawee data, the OAS item scores (normalized T-scores) were intercorrelated for the 442 boys who completed the form. The resulting matrix is presented in Table 12. For both sets of Mason data the raw scores were intercorrelated, using the 85-person sample. The Mason pre-test form X matrix is presented in Table 13, and the Mason post-test form Y matrix is presented in Table 14. The only noteworthy feature about them is that all of the items have a modest degree of positive correlation with each other. The correlations in Tables 13 and 14 are more variable than those in Table 12, but this is doubtless due to the smaller sample size.

TABLE 12--OAS item intercorrelation matrix (N = 442) (a)

	Items								Mean	SD
	1	2	3	4	5	6	7	8		
R-S...	(45)	24	40	37	27	26	31	28	3.05	2.06
I-S...		(47)	37	36	29	36	27	40	5.16	3.08
R-S...			(56)	42	44	34	42	43	2.93	2.32
I-S...				(54)	39	42	35	46	4.60	2.08
R-L...					(53)	45	43	34	3.95	2.84
I-L...						(52)	39	38	5.86	2.18
R-L...							(51)	40	4.47	2.25
I-L...								(54)	5.98	2.21

(a) Decimal points omitted. All coefficients are positive and significant at the .01 level. Diagonal elements are the estimated communalities. The abbreviations stand for: Realistic (R), Idealistic (I), Short-range (S), and Long-range (L).

Each correlation matrix was factor analyzed by the principal axes method (Cattell, 5, pp. 129 ff.). Communalities for the Lenawee matrix (Table 12) were estimated by Guttman's technique (18), and for the Mason matrices (Tables 13 and 14), by Burt's technique (Cattell, 5, p. 154). Eight principal axes were extracted from each matrix. In each matrix only three accounted for a substantial percentage of the total matrix variance, 90 percent for Lenawee, 91 percent for

Mason pre-test form X, and 100 percent for Mason post-test form Y. Each set of three principal axes was rotated to approximate orthogonal simple structure by means of the Neuhaus-Wrigley (42) quartimax method. The rotated factor loadings for each of the three largest factors, and the principal axes from which they were derived are shown in Tables 15, 16, and 17. Tables 15, 16, and 17 present the factor analyses of the three matrices Lenawee, Mason pre-test form X and Mason post-test form Y, in that order.

TABLE 13--OAS item intercorrelations, Mason form X sample (N = 85) (a)

	Items								Mean	SD
	1	2	3	4	5	6	7	8		
R-S...	(39)	30	42	21	26	20	40	30	3.13	2.06
I-S...		(51)	27	29	16	17	29	53	4.90	2.87
R-S...			(60)	42	49	27	55	44	2.87	2.19
I-S...				(42)	36	26	37	38	4.73	1.78
R-L...					(50)	27	50	37	3.85	2.83
I-L...						(25)	24	30	5.82	2.07
R-L...							(57)	35	4.35	2.36
I-L...								(56)	6.02	2.17

(a) Decimal points omitted. All coefficients are positive and significant at the .05 level (except those underlined). Figures in parentheses are estimated communalities. For abbreviations see Table 12.

TABLE 14--OAS item intercorrelations, Mason form Y sample (N = 85) (a)

	Items								Mean	SD
	1	2	3	4	5	6	7	8		
R-S...	(43)	30	26	35	43	23	26	22	5.05	2.45
I-S...		(38)	26	36	32	27	35	26	5.62	2.06
R-S...			(26)	29	22	14	19	20	4.52	2.16
I-S...				(36)	35	25	28	20	5.21	2.85
R-L...					(46)	28	34	27	4.16	1.76
I-L...						(25)	26	25	4.85	2.54
R-L...							(35)	33	4.15	2.55
I-L...								(31)	4.52	2.50

(a) Decimal points omitted. All coefficients are positive and significant at the .05 level (except those underlined). Figures in parentheses are the estimated communalities. For abbreviations see Table 12.

The loadings on the quartimax rotations are used to interpret the factors. All eight OAS items have moderately high loadings on the first rotated factor of each matrix. This factor accounts for 75, 65, and 83 percent of the variance in the respective matrices. It has high or moderate positive loadings on all items.

The other two factors do not exhibit any systematic pattern in any of the matrices. Neither do they account for a high proportion of the variance in any matrix. Evidently, the OAS measures one major factor. Since LOA is the factor the test is designed to measure, it seems reasonable to conclude that the first factor is high vs. low LOA. The next two factors are apparently uninterpretable, and we shall not attempt to identify them at this time. In general, it is tentatively concluded that the OAS is mostly a measure of general LOA, but it also contains a small amount of variance due to two unidentifiable factors. (This tentative conclusion will be slightly modified in the next section.)

TABLE 15--OAS factor matrix, Lenawee sample (N = 442) (a)

Items	Quartimax			Principal axes			h^2
	I	II	III	I	II	III	
1. R-S..............	50	02	40	51	-04	38	41
2. I-S..............	55	-33	-08	55	-29	-16	42
3. R-S..............	67	02	24	68	00	21	51
4. I-S..............	66	-14	07	67	-14	01	47
5. R-L..............	65	27	-11	64	31	-08	50
6. I-l..............	64	05	-25	63	11	-26	48
7. R-L..............	63	23	01	62	24	03	45
8. I-L..............	65	-23	-02	65	-21	-09	48
Percent total variance:	75	8	7	75	8	7	

(a) Decimal points omitted.

TABLE 16--OAS factor matrix, Mason form X sample (N = 85) (a)

Items	Quartimax			Principal axes			h^2
	I	II	III	I	II	III	
1. R-S.............	49	18	33	52	-00	-33	38
2. I-S.............	32	65	09	52	-50	-08	53
3. R-S.............	76	08	05	74	19	-06	58
4. I-S.............	53	20	-24	57	00	23	38
5. R-L.............	68	-06	-15	62	29	14	49
6. I-L.............	38	14	-16	41	00	16	19
7. R-L.............	74	02	14	70	23	-15	56
8. I-L.............	51	55	-12	67	-34	12	58
Percent total variance:	65	20	6	72	13	6	

(a) Decimals omitted.

TABLE 17--OAS factor matrix, Mason form Y sample (N = 85) (a)

Items	Quartimax			Principal axes			h^2
	I	II	III	I	II	III	
1. R-S...............	62	-22	-06	59	27	-12	43
2. I-S...............	56	14	18	58	-06	15	37
3. R-S...............	42	-04	28	42	11	25	26
4. I-S...............	57	-07	18	57	14	13	36
5. R-L...............	65	-06	-18	63	11	-23	46
6. I-L...............	44	18	-05	45	-14	-07	23
7. R-L...............	53	28	-01	55	-22	-03	36
8. I-L...............	44	32	-02	47	-27	-02	29
Percent total variance:	83	10	7	84	10	6	

(a) Decimals omitted.

2. Inter-instrument technique. As was noted earlier in the chapter, there is good reason to believe that the free-response North-Hatt LOA instrument used in the Jefferson County, Wisconsin study and, with slight modifications, in the Lenawee County study is more nearly valid than most LOA instruments. This is based on two findings. First, in Jefferson County the scores on this instrument were found to be positively correlated with level of educational or occupational achievement seven years after the original measurement was taken. Second, the two similar forms of that instrument administered in both counties are highly correlated (as compared to other LOA instruments) with non-LOA variables hypothesized to be related to LOA.[24] Also, this free-response instrument was found to be moderately highly correlated with the OAS, as noted above in the first test of the OAS's validity. A knowledge of the degree of factorial similarity of this instrument and the OAS will aid in interpreting the validity of the OAS. This will require an inter-instrument technique of factor analysis. This analysis requires three steps: 1. a factor-analysis of the items comprising the OAS, 2. a factor-analysis of the items comprising the North-Hatt free-response instrument, and 3. a factor-analysis of all items of both. The first, already presented, shows the factorial purity of the OAS. It is heavily, but not exclusively, saturated with one factor, assumed to be LOA. The other analyses will be reported in the following paragraphs. If the North-Hatt instrument is found to be unifactorial and if both together are uni-factorial, it may be concluded that both measure essentially the same factors. If the North-Hatt instrument is unifactorial but the two together have more factors, then an inspection of the factors and their loadings should indicate, roughly, the degree and nature of factorial similarity or dissimilarity of the two instruments.

The correlation among all items of both tests is presented in Table 18. The data are based on the usable Lenawee sample size of 365. Both the North-Hatt factor-analysis and the combined North-Hatt and OAS factor-analysis are based on correlation coefficients in the table. Communalities for the analyses are estimated by using the highest correlations in a column or row. Inspection shows that the five North-Hatt items are more highly correlated with each other than they are with the OAS items or than the OAS items are with each other. This suggests that the two instruments have a related, but not identical, factor structure. But we shall return to this later.

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[24] These findings may be inferred from Chapter IV.

TABLE 18--Intercorrelations of responses to the North-Hatt free-response instrument (X_1 - X_5) and the OAS (X_6 - X_{13}) (N = 365) (a)

Variables:	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}
NORTH-HATT													
X_1 Highest..	(72)	43	62	72	67	26	40	37	39	37	42	39	35
X_2 Lowest...		(55)	55	46	46	34	19	34	37	35	30	34	27
X_3 Plan.....			(75)	73	75	35	34	36	42	35	37	36	31
X_4 Free.....				(82)	82	30	39	34	38	28	36	34	33
X_5 Mature...					(82)	31	36	35	44	30	36	33	33
OAS													
X_6 R-S......						(37)	20	37	36	22	25	31	27
X_7 I-S......							(41)	38	36	31	35	29	41
X_8 R-S......								(45)	43	44	32	44	45
X_9 I-S......									(50)	44	41	34	50
X_{10} R-L......										(46)	46	43	34
X_{11} I-L......											(46)	38	36
X_{12} R-L......												(44)	41
X_{13} I-L......													(50)

(a) Decimal points omitted. All coefficients are positive and significant at or beyond the .01 level (one-tailed test). Communalities, using as an estimate the highest correlation of a variable to another variable, are in parentheses. Means and standard deviations for the North-Hatt Instrument are presented in Appendix I.

The factor analysis of the North-Hatt free-response instrument is presented in Table 19. The quartimax rotations clearly show the existence of one general factor, which we assume to be high vs. low LOA. It accounts for 88 percent of the total variance among the five items, and it has high loadings on all items. A second factor has its highest loading on X_2, the North-Hatt rating of the lowest choice, and inconsequential loadings on all other items. It accounts for eight percent of the total matrix variance. It is interpreted as high vs. low realistic LOA. The third factor is uninterpretable and accounts for only three percent of the total variance. It is concluded that the North-Hatt free-response instrument is essentially a single-factor instrument. This is tentatively identified as high vs. low LOA.

Apparently both the OAS and the North-Hatt free response instrument are each measures of one factor. Whether that factor is LOA or something else can only--at this point--be inferred from the item content. Without further information, it might be concluded that both are saturated almost exclusively with LOA, and therefore that they are both equally valid measures of LOA. But, why then, is their correlation only r = +.62? Suggestions for answering this question follow from the study of the inter-technique factor-analytic validity to follow.

TABLE 19--North-Hatt free-response LOA instrument factor matrix. Lenawee sample (N = 365) (a)

Variable:	Quartimax loadings			Principal axes loadings			h^2
	I	II	III	I	II	III	
X_1: Highest..........	79	-01	31	79	14	-27	72
X_2: Lowest...........	55	49	00	60	-43	-07	55
X_3: Plan.............	84	18	-12	85	-13	12	75
X_4: Free.............	90	-08	03	89	16	02	82
X_5: Mature...........	90	-08	-11	88	13	16	82
Percent total variance:	88	8	3	89	7	3	

(a) Decimal points omitted.

Table 20 presents the results of the factor analysis of the 13 x 13 correlation matrix composing Table 18. Three orthogonal factors account for 88 percent of the total variance in this matrix. But unlike previous matrices, after quartimax rotation, there are two substantial factors in the matrix: Factor I, accounting for 57 percent of the total variance, and Factor II, accounting for 25 percent of the total variance. Clearly, Factor I may be interpreted as a high vs. low LOA factor. All items have positive loadings on it. The lowest of these is .35 (X_6 and X_{13}). The North-Hatt free-response items (X_1 - X_5) have the highest loadings on the factor, both before and after rotation. Especially after rotation, these loadings are strikingly high. The OAS items (X_6 - X_{13}) all have moderately high loadings on Factor I, but no OAS item has as high a loading as even the lowest North-Hatt item.

Apparently, the LOA factor is somewhat more clearly measured by the North-Hatt instrument. But inasmuch as the OAS's total score is based on the greater number of items, it follows that the OAS is probably about as effective a measure of the factor as is the North-Hatt instrument.

Factor II makes a clear distinction between the two instruments. The rotated matrix shows moderately high loadings on all OAS items (X_6 - X_{13}), and quite low loadings on all North-Hatt items (X_1 - X_5). The same pattern is present in the unrotated matrix, where all OAS items have moderately low positive loadings and all North-Hatt items have moderately high to quite low negative loadings. Factor II may be identified then as a specific-technique factor. Structurally, these instruments are similar in that they are both multiple-item and both based quite directly on the occupational prestige hierarchy. They differ in that one is free-response, while the other is structured response. They also differ in that one is balanced and complete: it systematically measures the several combinations of expression-levels and goal-periods. The other is unbalanced and incomplete: it haphazardly measures each expression-level and goal-period and it is somewhat weighted to the short-range. They may also differ in ways which are more subtle and which are unknown at this time. There is no way of deciding exactly which of the evident or subtle differences produces Factor II.

TABLE 20--North-Hatt free-response instrument (X_1 - X_5) and OAS (X_6 - X_{13}) inter-technique factor matrix. Lenawee sample (N = 365) (a)

Item	Quartimax loadings			Principal axes loadings			h^2
	I	II	III	I	II	III	
NORTH-HATT							
X_1: Highest..........	79	16	-13	76	-22	17	66
X_2: Lowest...........	55	20	42	60	-07	-39	52
X_3: Plan.............	84	07	18	78	-32	-14	73
X_4: Free.............	90	-01	-07	79	-43	11	82
X_5: Mature...........	89	01	-02	79	-41	06	80
OAS							
X_6: R-S..............	35	30	30	46	12	-26	30
X_7: I-S..............	41	40	-26	53	16	30	39
X_8: R-S..............	38	54	09	59	31	-05	45
X_9: I-S..............	44	52	06	63	25	-02	46
X_{10}: R-L..............	35	54	07	56	32	-03	42
X_{11}: I-L..............	41	46	-06	57	21	10	38
X_{12}: R-L..............	38	49	11	57	26	-07	40
X_{13}: I-L..............	35	57	-10	57	34	15	46
Percent total variance:	57	25	06	69	13	05	

(a) Decimal points omitted.

Factor III is evidently the same as Factor II from Table 19, slightly modified by the addition of the OAS items. It has moderately low positive loadings on the lowest (X_2), the plan (X_3), one OAS realistic short-range question (X_6), and a moderately low negative loading on an OAS idealistic short-range question (X_7). Its meaning is not clear enough and its contribution to the correlation matrix variance is not large enough to warrant naming it.

It may be concluded that the inter-technique factorial validity analysis shows that (1) Both instruments are heavily saturated with a common factor. (2) This factor is probably LOA. (3) The North-Hatt instrument has the highest loadings on the LOA factor. (4) But the OAS also has high loadings on the factor. (5) There is a specific-technique factor which sharply differentiates the two instruments, although there is no apparent way of knowing at present exactly what produces this difference.

Summary of Internal Characteristics of the Occupational Aspiration Scale

By internal characteristics we refer to the patterns among persons' responses to the OAS. Descriptions of response patterning include norms, reliability, factor-analytic structure, and non-factor-analytic structure or profile. They also include the relationship of the OAS to other LOA instruments, specifically the concurrent validity coefficient and the inter-technique factorial validity. The term "internal characteristics" is thus juxtaposed to the term design, the subject of the previous chapter. The latter is concerned with the organization of the OAS as it was derived from LOA theory and as it is presented to prospective respondents in terms of physical format and administrative instructions, while the former is concerned with patterns among the respondents' answers.

Data for these analyses were collected from all seventeen-year-old boys in school in Lenawee County, Michigan, in the spring of 1957, and from all junior and senior boys in school in Mason, Michigan, in the winter of 1958-59. The OAS was designed as an instrument to be administered to adolescent boys before they have taken permanent jobs or entered college. For this reason, girls of all ages and boys of this age who were no longer in school were excluded. For various reasons, data on some of those tested are incomplete. For this reason, the sizes of samples vary from analysis to analysis. In our judgment the analyses are not at all adversely affected by this. This is because the results, including those of the next chapter, are consistent with each other and with LOA theory.

In brief, this chapter has shown several facts about responses to the OAS. 1. Its attrition rate due to non-responses, incomplete responses, and unusable responses, is less than 1 percent. 2. It has reliability coefficients which are high enough to warrant its use in research and counseling.[25] Its equivalent-halves reliability has been quite well established for three different administrations. It is in the vicinity of .80. Its stability is less well established. On the one 10-week interval test of it which has been made, it appeared to be fairly stable (r_s = .77). This test used equivalent forms, rather than identical forms, so it may be that for the 10-week period its stability is underestimated. On the other hand, its stability over longer time periods may well be lower than the 10-week figure. 3. The OAS seems to be a valid measure of LOA. Here the data are necessarily indirect. (a) They show that the non-factorial or profile structure of the OAS is consistent with LOA theory. Realistic expression level stimulus questions yield lower mean scores than do mean idealistic expression level stimulus questions, and short-range time-dimension period stimulus questions tend to yield lower mean scores than do mean long-range time-dimension period stimulus questions. The data regarding time-dimension periods are not completely consistent. (b) The only estimate available for a coefficient of concurrent validity is a moderate value of +.62, based on the OAS's correlation with a North-Hatt technique. Whether this is evidence for or against the OAS as a measure of LOA is really a moot question: while the North-Hatt multiple-item free-response technique is probably the best previous LOA instrument, it has many shortcomings--not the least of which is the fact that its uncodable responses (resulting in an attribution rate of 17 to 25 percent) probably force the exclusion of a large proportion of the low aspirers. (c) Factor analysis shows the OAS to be essentially a one-factor test, for one factor accounts for the great proportion of its total inter-item variance. (d) An inter-technique factorial validity test shows the main OAS factor to be essentially the same as the main North-Hatt technique factor. This is probably LOA. But there is a factor which distinguishes between the two techniques. The exact sources of this factor cannot be located with present data. The two techniques differ in several ways, any one or any combination of which might produce the factorial difference. It seems possible, however, that whatever reduces the validity coefficient--see (b) above--also is responsible for the difference in factor structure.

In general, it is concluded that OAS is a reliable, stable, and at least approximately valid instrument. The best evidence for the OAS's validity must, however, wait until the first subjects to take it have stabilized themselves in their life's occupations. The validity of the OAS will be finally established only if the combined effects of LOA as measured by the OAS and of variables impeding and facilitating the expression of LOA in behavior are found to accurately account for the variance in actual prestige levels of occupational achievement.

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[25] While this is true, it should be emphasized that the OAS should not be used in counseling until it has been evaluated specifically for that purpose.

But there are other indirect ways of approaching the assessment of validity. One of these was presented in Chapter IV. In that chapter the relational fertility of the concept of LOA was tested by constructing hypotheses about the correlation of LOA to non-LOA variables. These hypotheses were based on general attitude theory and on general level of aspiration theory. In spite of the many deficiencies existing in LOA instruments it was found that they behave lawfully. The same logic may be applied on the OAS as one measure of LOA. The relation of OAS scores to non-LOA variables is the subject of the next chapter.

CHAPTER VII

CORRELATES OF THE OCCUPATIONAL ASPIRATION SCALE

The general objective of this chapter is to report findings on the correlation of the OAS with non-LOA variables. But this will be done in a way permitting this information to contribute to knowledge concerning the validity of the OAS. As noted in Chapter IV, the demonstration of lawful behavior is a method of testing for validity. In that chapter, the argument was focused on the concept of LOA. It was shown that seven hypotheses based on attitude and level of aspiration theory, of which LOA is a special case, account for a substantial proportion of the positive statistically "significant" correlations of any measure of LOA with other variables, and that most of the variables not classifiable under one of the seven hypotheses are not correlated with LOA.

The same type of argument may be utilized with the OAS. If the OAS is a valid LOA instrument, then it will follow the same "laws"--behave in accord with the same hypotheses--as will other LOA instruments. If it is a more valid instrument it will behave more nearly in accord with the same "laws" than do the most valid of the other instruments. "Behaving more nearly in accord" means two things: 1. Under comparable conditions, the OAS will be more highly correlated with non-LOA variables classifiable under the seven hypotheses than is the most valid previous instrument. 2. Under comparable conditions, the OAS will be statistically "significantly" correlated with more non-LOA variables classifiable under the seven hypotheses than will the most valid of existing instruments. The corresponding argument cannot, and will not, be made for the hypothesis of no relationship, because Chapter IV has already shown that LOA evidently follows "laws" which are not stated in any of the seven hypotheses of relationship. Except for this fact, it would be expected that the more valid the LOA instrument, the less frequently it would be correlated with non-LOA variables not theoretically related to LOA. As it is, there is good reason to suspect that the hypotheses are incomplete; if LOA follows unknown "laws" then the more valid the LOA instrument, the more frequently it will be correlated with the non-LOA variables.

Given the somewhat indeterminate state of LOA knowledge, this chapter will specify the hypotheses from Chapter IV for which data are available. The behavior of OAS with respect to these will be compared with the behavior of the most valid previous instrument with respect to the same variables on the same sample. Two types of comparisons will be made: (1) magnitude of correlation of each with non-LOA variables, and (2) number of non-LOA variables statistically "significantly" related to each in the expected direction. Conclusions will then be drawn concerning the comparative validity of the OAS. This will be followed by a presentation of non-LOA variables for which comparative data do not exist. They will be presented along with the hypotheses to which, in the writers' opinion, they are most appropriate. This will be followed by general conclusions concerning the absolute and relative relational fertility of the OAS as a measure of LOA. Implications for validity will then be discussed.

The Most Valid Previous LOA Instrument

The question of which is the most valid previous LOA instrument must be answered. Here, too, the data are not easy to evaluate. The best evidence comes from Chapters III and IV. On non-empirical grounds the most valid instrument is the one which comes closest to including all of the aspects of level of aspiration theory. The OL scale and the LI scale are quite inadequate in this respect, being only implicitly and indirectly related to the level of aspiration model and to the occupational hierarchy. All single-stimulus techniques such as Stubbins' and others are inadequate in that they are based only on parts of the level of aspiration model. This leaves the North-Hatt free-response instrument used in Jefferson and Lenawee Counties as the only previous instrument which meets almost all theoretical requirements of a LOA measure.

The empirical ground, however, is less solid. Most of the data are not strictly comparable. Moreover, there are none of the single stimulus questions appearing in enough tests to warrant inclusion in this comparison. Only the OL, the LI and the North-Hatt techniques have been explored fully enough for this. With these qualifications, the study of the tests in Chapter IV shows that the OL scale has the highest proportion of correlations which are not in accord with the first seven hypotheses. The Lee-Thorpe has the second highest proportion of unpredictable correlations and the North-Hatt free-response technique has the lowest. In addition, data are available to compare the North-Hatt and the LI scale on the Jefferson County sample. When this is done, it is found that the correlation of the North-Hatt with non-LOA variables is higher than that of the LI many times more frequently than the LI correlation is higher than that of the North-Hatt technique. It seems clear, therefore, that of the three instruments having extensive enough use to warrant comparison, the North-Hatt free-response instrument is the most valid. Thus, both the theoretical and empirical evidence justifies and supports the conclusion that the North-Hatt free-response instrument is the most appropriate with which to compare the OAS in terms of relational fertility.

Data and Method

Data for the comparative analysis are taken from the Lenawee County study. Due to incomplete responses to the free-response questions, the North-Hatt sample consists of 365 boys. The OAS data are based on a larger sample of 433 boys for whom other data are complete. The hypotheses to which the data pertain are written out in the order of their appearance. Hypotheses to which no data are appropriate are not repeated here. All non-LOA variables presented in the first part of this chapter, as well as their correlations with the North-Hatt instrument, have been presented previously in Chapter IV. Non-LOA variables appearing for the first time in this chapter will be presented after the comparative analysis. As in Chapter IV, the .05 level (two-tailed test) will be used as the criterion in the TANH.

Comparative Analysis

This section presents OAS correlates for which comparable North-Hatt data are available. The correlations are presented following the restatement of the hypothesis to which they refer. (Hypotheses 1 and 7 and omitted because no OAS data pertain to them.) Special classes of variables testing the hypotheses as well as their explanations are stated in Chapter IV and will not be repeated here, although they will be presented in the same order as in that chapter so as to aid readers who may wish to refer to them.

Hypothesis 2. A positive correlation will be found between LOA and any measure of success in school. Data concerning this hypothesis follow. 1. Grade point averages in school--North-Hatt: +.53; OAS: +.50. 2. Number of years of college training desired--North-Hatt: +.67; OAS: +.64.

Hypothesis 3. A positive correlation will be found between the person's LOA and the success orientations of the groups to which he belongs. The relevant data are as follows: 3. Sons' estimates of their parents' levels of occupational aspiration for them--North-Hatt: +.29; OAS: +.22. 4. Sons' estimates of their parents' levels of educational aspiration for them--North-Hatt: +.44; OAS: +.44.

Hypothesis 4. A positive correlation will be found between LOA and the degree to which the social situation of the person tends to produce success in occupationally related areas of behavior. These data follow: 5. Modified Sewell Socioeconomic Status Scale (47) Scores--North-Hatt: +.38; OAS: +.38. 6. Father's educational status--North-Hatt: +.27; OAS: +.29. 7. Mother's educational status--North-Hatt: +.25; OAS: +.30.

Hypothesis 5. A positive correlation will be found between LOA and any personality orientation tending to produce the experience of success in occupationally related areas of behavior. The data follow: 8. Intelligence raw scores (Cattell' Test of G-Culture Free, 6)--North-Hatt: +.46; OAS: +.45. 9. Personality adjustment (California Test of Personality, 62)--North-Hatt: +.30; OAS: +.28. 10. 16 P-F Test (Cattell, 27) Factor C, emotional stability--North-Hatt: +.19; OAS: +.19. 11. 16 P-F Test Factor F, surgency--North-Hatt: not related; OAS: +.11. 12. 16 P-F Test Factor O, lack of anxious insecurity--North-Hatt: not related; OAS: not related. 13. 16 P-F Test Factor Q_4, lack of nervous tension--North-Hatt: not related; OAS: +.11. 14. 16 P-F Test Factor A, cyclothymia vs. schizothymia--North-Hatt: not related; OAS: +.12. 15. 16 P-F Test Factor G, super ego strength--North-Hatt: +.23; OAS: +.26. 16. 16 P-F Test Factor N, sophistication--North-Hatt: +.21; OAS: +.16. 17. 16 P-F Test Factor Q_3, will control and character stability--North-Hatt: +.13; OAS: +.16. 18. MSU Work Beliefs Check-List BVA 6, willingness to defer gratification--North-Hatt: +.28; OAS: +.21.

Hypothesis 6. A positive correlation will be found between LOA and any personality orientation expressing the willingness to act independently. The data relevant to this hypothesis follow: 19. 16 P-F Test Factor E, dominance--North-Hatt: +.11; OAS: not related. 20. 16 P-F Test Factor H, adventurous autonomic resilience--North-Hatt: +.22; OAS: +.24. 21. 16 P-F Test Factor Q_1, radicalism--North-Hatt: +.13; OAS: not related. 22. 16 P-F Test Factor Q_2, independent self-sufficiency--North-Hatt: +.14; OAS: +.18.

The most striking fact about these findings is the similarity in the degrees to which each LOA instrument is correlated with non-LOA variables. The correlation coefficients are almost exactly the same. Where minute differences in the magnitude of correlation appear, they favor the OAS. There are 16 pairs of coefficients in which both members are statistically "significantly" related to a non-LOA variable. In 10 of these, the OAS has the slightly greater correlation, and in six the North-Hatt technique has the slightly greater correlation. There are five instances in which one or the other LOA instrument was not found to be related to non-LOA variables. In three of these, the OAS was found to be related to the non-LOA variable, and in two the North-Hatt was found to be related. In only one instance were both found to be unrelated to a non-LOA variable. (For both instruments, infinity rather than the actual sample size was used to estimate the degrees of freedom due to observations. Hence the apparent differences in the results of the TANH cannot be attributed to the differences in the size of samples.)

The clear conclusion to be drawn is that one instrument has about the same degree of relational fertility as the other. The OAS and the North-Hatt free-response LOA instrument have almost exactly the same indirect validity as assessed by their ability to detect relationships with non-LOA variables where the theory and the bulk of the evidence indicate that relationships exist. Available theory and data indicate that the North-Hatt free-response instrument is probably the most nearly valid LOA instrument known to be in existence before the OAS. It may be concluded that the OAS has as high a degree of validity as assessed by relational fertility tests as does the most nearly valid previous instrument.

Other Non-LOA Correlates of the OAS

In accord with the procedure stated in the beginning, this section will present other correlates of the OAS according to the hypothesis the writers believe to be most appropriate. The purposes of this are to add to the relational fertility data already presented, and to help catalogue the variables known to be related to LOA as measured by the OAS.

Intra-class correlation data of the OAS scores of boys who choose each other as best friends are available from the Lenawee and Mason studies (23, 39). These data are appropriate to Hypothesis 3, which holds that a positive correlation will be found between the person's LOA and the success orientations of the groups to which he belongs. The group under study here is the peer clique. The Lenawee data are complex and an exact R coefficient is not available for them. The findings, then, are: 1. Lenawee: R = approximately +.30; 2. Mason: R = +.33.

BVA's 1 and 2 of the MSU Work Beliefs Check-List are appropriate to Hypothesis 5, concerning the positive correlation of LOA to personality orientations producing the experience of success in occupationally related areas of behavior. BVA 1 measures the degree to which the person is expressively vs. instrumentally oriented toward work; whether he viewed work as an end or simply as a means for making money. It is called "expressive versus instrumental orientation to work." BVA 2 measures the degree to which the person has a favorable attitude toward having time organized. It is called "evaluation of structured time" but it might be equally well called "preference for punctuality." The respective correlations with the OAS follow: 3. BVA 1: not related; 4. BVA 2: r = +.11.

BVA's 3, 4, and 5 are believed to be appropriate to Hypothesis 6, concerning LOA and personality orientations expressing the willingness to act independently. BVA 3, "positive versus negative evaluation of physical mobility," measures the degree to which the person is psychologically prepared to move as new occupational alternatives appear. BVA 4, "positive versus negative evaluation of change," measures the degree to which the person likes new experiences and dislikes traditional ways of doing things. BVA 5, "belief in internal versus external determination of events," measures the degree to which the person believes his fate is under his own control rather than under the control of other beings or forces." The respective correlations follow: 5. BVA 3: r = +.20; 6. BVA 4: not related; 7. BVA 5: r = +.28.

De Charms' et al. (10) v-achievement measures the degree to which a person believes himself to be achievement-oriented. As such it falls under Hypothesis 7, which relates LOA and self-conception concerning success or achievement orientation. Data measuring its correlation with the OAS were collected in the Mason study. Its correlation with the OAS follows: 8. v- achievement: r = +.25.

Several other variables, not clearly belonging to any of the seven substantive hypotheses, have been tested against the OAS. These and their respective correlations with the OAS follow: 9. The proportion of courses taken by Lenawee boys in non-agricultural courses: r = +.30. 10. A measure of the degree of certainty the youth has that he will actually enter a particular occupation: not related. 11. 16 P-F Test Factor I, emotional sensitivity: not related. 12. 16 P-F Test Factor L, paranoid schizothymia vs. trustful altruism: not related. 13. 16 P-F Test Factor M, hysteric unconcern vs. practical concernedness: not related. 14. Concern over social status (a multiple-item index): not related.

Summary

This chapter has presented the correlations of the OAS with non-LOA variables This was done in such a way as to contribute to knowledge of the relational fertility of the OAS, and thus to make an indirect test of its validity. The part of the chapter comparing the OAS with the North-Hatt free-response instrument presents the most powerful argument. In it we find that the OAS is about as valid as is the most valid previous LOA instrument. The last section simply lists the correlation of the OAS to other variables. Table 21 summarizes the correlations of the OAS with the Lenawee County variables.

TABLE 21--Zero-order correlations of 32 variables with the OAS total score: Ranked by magnitude (N = 433, Lenawee County) (a)

Variable	r with OAS	Variable	r with OAS	Variable	r with OAS
1 (CP)......	64	30 (PDO).....	22	20 (PF$_M$).....	$\underline{-08}$
31 (GPA)......	50	7 (BVA 6)...	21	23 (PF$_{Q1}$)....	$\underline{07}$
10 (CFIQ).....	45	4 (BVA 3)...	20	19 (PF$_L$).....	$\underline{-07}$
29 (PDE)......	44	13 (PF$_C$).....	19	22 (PF$_O$).....	$\underline{-07}$
27 (SES)......	37	21 (PF$_N$).....	16	8 (OC)......	$\underline{-07}$
32 (AC).......	-30	25 (PF$_{Q3}$)....	16	9 (SA)......	$\underline{-07}$
28 (FES)......	29	24 (PF$_{Q2}$)....	14	5 (BVA 4)...	$\underline{06}$
6 (BVA 5)....	28	12 (PF$_A$).....	13	2 (BVA 1)...	$\underline{03}$
11 (CTP)......	28	3 (BVA 2)...	11	18 (PF$_I$).....	$\underline{-03}$
16 (PF$_G$)......	26	26 (PF$_{Q4}$)....	-11	14 (PF$_E$).....	$\underline{02}$
17 (PF$_H$)......	24	15 (PF$_F$).....	$\underline{10}$		

(a) Decimals omitted. All correlations are positive unless otherwise indicated. All correlations are significant at the .05 level except those underlined. Abbreviations for each variable are described in Table 22.

TABLE 22--Abbreviation key for variables in Table 21

Identification	Description
A: PERSONAL VARIABLES:	
1 (CP)........	Number of years of college planned
2 (BVA$_1$)......	Belief that work is of expressive value vs. instrumental value (a)
3 (BVA$_2$)......	Positive vs. negative evaluation of structured time
4 (BVA$_3$)......	Positive vs. negative evaluation of physical mobility
5 (BVA$_4$)......	Positive vs. negative evaluation of change
6 (BVA$_5$)......	Belief in internal vs. external determination of events
7 (BVA$_6$)......	Positive vs. negative evaluation of deferred gratification
8 (OC)........	Occupational Crystallization (certainty of occupational choice)
9 (SA)........	Status anxiety (concern over social status)
10 (CFIQ)......	Intelligence
11 (CTP).......	Personality adjustment
12 (PF$_A$).......	Personality Factor-A: (b) "Cyclothymia vs. Schizothymia"
13 (PF$_C$).......	PF-C: "Emotional Stability vs. dissatisfied emotionality"
14 (PF$_E$).......	PF-E: "Dominance or Ascendance vs. Submission"
15 (PF$_F$).......	PF-F: "Surgency vs. depressive anxiety"
16 (PF$_G$).......	PF-G: "Character vs. lack of internal standards"
17 (PF$_H$).......	PF-H: "Adventurous Autonomic resilience vs. inherent, withdrawn schizothymia"
18 (PF$_I$).......	PF-I: "Emotional sensitivity vs. tough maturity"
19 (PF$_L$).......	PF-L: "Paranoid schizothymia vs. trustful altruism"
20 (PF$_M$).......	PF-M: "Hysterical unconcern or 'bohemianism' vs. practical concernedness"
21 (PF$_N$).......	PF-N: "Sophistication vs. rough simplicity"
22 (PF$_O$).......	PF-O: "Anxious insecurity vs. placid self-confidence"
23 (PF$_{Q1}$)......	PF-Q$_1$: "Radicalism vs. Conservatism"
24 (PF$_{Q2}$)......	PF-Q$_2$: "Independent self-sufficiency vs. lack of resolution"
25 (PF$_{Q3}$)......	PF-Q$_3$: "Will control and character stability"
26 (PF$_{Q4}$)......	PF-Q$_4$: "Nervous tension"
B: SOCIAL-SITUATIONAL VARIABLES:	
27 (SES).......	Socio-economic status
28 (FES).......	Father's educational status
29 (PDE).......	Parental desire for the youth's post-high school educational achievement
30 (PDO).......	Parental desire for the youth's high level of occupational achievement
C: PERFORMANCE VARIABLES:	
31 (GPA).......	High School grade point average: 1956-1957 (Academic courses only)
32 (AC)........	Number of agricultural courses taken through 1957

(a) For all variables, the first named characteristic refers to a high score.
(b) The remaining Personality Factors are abbreviated as PF.

CHAPTER VIII

CONCLUSION

Summary of Theory and Techniques of LOA

In Chapter I we noted that the purpose of this monograph is to present and evaluate an instrument designed to measure differential levels of occupational aspiration or LOA. The concept LOA has had considerable use in recent years, mostly because it is believed to be a psychological orientation to enter the occupational world at one level rather than another.

So far as the writers have been able to discover there has been no completely adequate measure of differential relative LOA previous to the development of the Occupational Aspiration Scale (OAS). The main purpose of this monograph is to present the results of empirical tests of the adequacy of the OAS as a measure of LOA.

Accomplishing this purpose, however, presupposes a wealth of detailed information on LOA. Actually, a certain amount of such information exists. But it has never been written up as a whole. For this reason, three chapters were devoted to the LOA concept. Following the general introduction in Chapter I, Chapter II presented a description of the LOA concept. In that chapter we tried to show that LOA is a special instance of both the concept of level of aspiration and the concept of attitude. We also traced its relationship to a number of other concepts in the behavioral sciences, and elaborated the LOA concept itself in some detail. This discussion was followed by Chapter III which presented a conceptual evaluation of most of the various LOA measures which have been used in research. This analysis required specifying the measurement implications of LOA theory, as well as some of the practical requirements of all instruments purporting to measuring psychological constructs. No previous LOA measuring technique was found which does justice to the theory; neither do any meet all of the practical requirements of a psychological instrument. Moreover, the techniques which most nearly meet the theoretical requirements are the least practicable.

Sciences are not built on dataless theory, however. LOA has never before been subjected to an exhaustive study of its correlates. This was done in Chapter IV by drawing seven hypotheses from theory of aspiration and of attitude, and then classifying all variables under the hypotheses known to have been tested for correlation with LOA. Many variables could not be classed as appropriate to any of these hypotheses, and were therefore classed under an hypothesis predicting no correlation with LOA. The over-all result was that even the inadequate available instruments show the LOA concept to behave predictably. For when we hypothesize that an LOA measure will be related to a non-LOA variable we are correct about four-fifths of the time, and when we hypothesize that an LOA measure will not be related to a non-LOA variable we are correct about seven-tenths of the time. This seems to be quite strong evidence that LOA's theoretical promise is fulfilled in its empirical behavior.

This finding justifies the detailed analysis of the OAS, presented in Chapters V, VI, and VII. In brief, we find that the OAS has an internal structure which does justice to the various elements of the LOA concept, and it has a design which makes it a practicable instrument for research and for counseling, but we must note again that it should not be used for counseling until it has been evaluated specifically for this purpose. It should be emphasized that the OAS is a measure of relative, not absolute LOA. The empirical findings on the OAS are summarized below.

Summary of OAS Data

The main findings of the analysis of responses to the OAS are itemized below. These findings are summarized from Chapters V, VI, and VII.

It has been evaluated for measuring LOA's of older high school boys. While it may be appropriate for school girls and for school boys of other ages, this has not yet been demonstrated.

Total administration time in group situations (including time for distributing the forms, explaining how to fill them out, answering student's questions, and filling out the form) is usually not more than one-half hour.

Scoring time is about one to two minutes per form, and the form may be scored by any literate person.

The rate of non-responses and unusable responses is less than one percent.

The mean score is approximately 37 points.

The Standard deviation of the scores is approximately 11.5 - 13.0 points.

The shape of the distribution of raw scores is approximately normal.

The split-half reliability is about r = .80, when corrected for attenuation.

The test-retest reliability coefficient, measured on equivalent forms administered 10 weeks apart, is r = .77.

The concurrent validity coefficient, measured against perhaps the best previous LOA instrument, is r = +.62.

Its profile structure is as predicted by theory. Realistic and short-range levels tend to be lower than idealistic and long-range levels. (Some of the evidence here is contrary to the above pattern.)

Its internal factor-analytic structure consists of three factors, only one of which accounts for a substantial proportion of the item intercorrelation. That is, it is essentially a one-factor form.

An inter-technique factor-analysis shows it to share a main factor with a free-response technique, but it is distinguished from the free-response technique by another substantial factor. The exact sources of the latter factor are unknown, but it is probably due to the differences in ways of eliciting LOA responses.

The relational fertility of the OAS agrees with that of all other LOA measures, in that it is correlated and uncorrelated with the same types of non-LOA variables.

In comparative relational fertility, the OAS agrees well with perhaps the best of previous LOA instruments, in that it has almost exactly the same degree of correlation with non-LOA variables as does the latter instrument.

Conclusion and Problems for Research

Conclusion

In general, we conclude that the OAS appears to be a practical, reliable, and evidently a valid instrument for measuring differential levels of occupational

aspiration. It is probably the best available single combination of practicability reliability and validity. Students find it easy to fill out and they do it quickly It is also easy to score. All other instruments that are simple to administer and score are deficient in other respects. There are a few other reliable LOA instruments but these are of unknown or relatively low validity. The design of the two other instruments of high reliability, Strong's OL scale and the Lee-Thorpe LI scale, is only vaguely related to LOA theory, and the two are practically uncorrelated with each other. Only one LOA instrument, a multiple-item free-response technique, is known to have a degree of predictive validity. This is the North-Hatt technique. The OAS is moderately highly correlated with it, and this instrument and the OAS have almost identical degrees of correlation with a number of non-LOA variables. But the free-response instrument is not practicable because it has a high non-response rate and is difficult to score.

Problems for Research

The most pressing unresolved problem of the OAS is that its predictive validity is unknown. We have used every indirect method of assessing validity we could discover, and it holds up well according to these. But its predictive validity has yet to be established. The most adequate tests of predictive validity require the re-study of subjects initially tested in high school after they have moved on to their life's occupations or have completed their college education. Less adequate, but nevertheless useful, tests of predictive validity may be made on the academic success of college freshmen and other groups for one of the hypothesized effects of LOA is performance in school. Such studies are now being conducted at Michigan State University.

The fakability of the OAS also needs to be tested. Also, research needs to be conducted to determine the extent to which students actually do fake the form. Our guess is that very few do so, but we have no definite evidence of this. Moreover, we believe that an essentially unfakable form could be devised by correlating responses to questions having no LOA manifest content with responses to the OAS, under conditions where the initial respondents are highly motivated not to fake their answers. Such a system may be subject to other types of error, but it should be tried.

A third problem concerns the present response alternatives to the OAS. As we indicated in Chapter V, the response alternatives are presently unbalanced. This means that the average ranks of the alternatives contributing to the measurement of each combination of expression-levels and time-dimension periods are unequal. This inequality almost surely influences the profile structure of the responses. As it happens, this is not at all a serious difficulty, but future editions of the OAS should include balanced response alternatives.

A fourth problem, or set of problems, concerns the evaluation of the OAS for counseling purposes. To date, it has not been used to counsel students. But this is an important potential use for it. It is our belief that its most important use in counseling would be to discover the students whose class (or other group) rank on LOA is quite dissimilar to their rank on intelligence or grades. Such people would be over-aspirers or under-aspirers. The over-aspirers might well need counseling to lower their LOA's, and the under-aspirers might need counseling to accomplish the opposite. We hope to begin research aimed at evaluation of the OAS for counselors in the near future.

The usefulness of the OAS for girls has yet to be demonstrated. It may not be appropriate for girls, but research should be conducted to see if this is true. Exploratory studies now being conducted at Michigan State University appear to show that girls respond to it in ways which, though different from those of boys, are nevertheless meaningful. But OAS studies of girls need to be conducted much more systematically than has been done to date.

Additional reliability data should be collected. In particular, we need more long-range stability coefficients than are presently available.

Extensive data on norms for boys and girls of different ages also need to be compiled. These will help counselors interpret the meaning of the score for any particular individual. Research is presently underway to determine the influence of higher levels of LOA, as measured by the OAS, as a psychological force sustaining the individual in school and predisposing him to do well in school. These studies are being conducted on junior high school children who may be potential drop-outs and on beginning college students at Michigan State University.

The OAS may be easily improved. We have already noted that an unfakable form could be constructed. A revision with balanced response alternatives should be put together, using the system noted on p.49. At the same time, the problem of unwanted response sets (p. 49) could be overcome in the same revision. Finally, the split-half reliability of the OAS could be increased by doubling or tripling the number of its stimulus questions. This could be done by repeating the various response alternatives while keeping both the stimulus questions and the response alternatives balanced. But this may not be worthwhile because it would lengthen the time required to administer and score the OAS.

There are other unsolved problems on the development and dynamics of LOA for which the OAS may be an important instrument. For one, we need to trace the development of LOA through time. For others, we need to investigate differences between those whose idealistic and realistic expression levels are distant as compared to those whose expression levels are close together; and those whose long-range time-dimension levels are no different from their short-range as compared to those whose long-range time-dimension levels are much higher than their short-range.

Uses of the OAS

In these pages we have presented the Occupational Aspiration Scale. Only additional research can tell whether it can be used by counselors. But in our opinion, it is a quite satisfactory instrument for research on LOA. It is our hope that it will extend knowledge of the occupational and educational behavior of youth in America and perhaps elsewhere.

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APPENDIX I

INFORMATION ON THE OCCUPATIONAL ASPIRATION SCALE AND OTHER VARIABLES

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By Archie O. Haller

YOUR NAME ____________________________________

OCCUPATIONAL ASPIRATION SCALE

THIS SET OF QUESTIONS CONCERNS YOUR INTEREST IN DIFFERENT KINDS OF JOBS. THERE ARE EIGHT QUESTIONS. EACH ONE ASKS YOU TO CHOOSE ONE JOB OUT OF TEN PRESENTED.

BE SURE YOUR NAME IS ON THE TOP OF THIS PAGE.

READ EACH QUESTION CAREFULLY. THEY ARE ALL DIFFERENT.

ANSWER EACH ONE THE BEST YOU CAN. DON'T OMIT ANY.

Question 1. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER?

1.1______Lawyer
1.2______Welfare worker for a city government
1.3______United States representative in Congress
1.4______Corporal in the Army
1.5______United States Supreme Court Justice
1.6______Night watchman
1.7______Sociologist
1.8______Policeman
1.9______County agricultural agent
1.10_____Filling station attendant

Question 2. Of the jobs listed in this question, which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER?

2.1______Member of the board of directors of a large corporation
2.2______Undertaker
2.3______Banker
2.4______Machine operator in a factory
2.5______Physician (doctor)
2.6______Clothes presser in a laundry
2.7______Accountant for a large business
2.8______Railroad conductor
2.9______Railroad engineer
2.10_____Singer in a night club

Question 3. Of the jobs listed in this question which is the BEST ONE you are REALLY SURE YOU CAN GET when your SCHOOLING IS OVER?

3.1_____Nuclear physicist
3.2_____Reporter for a daily newspaper
3.3_____County judge
3.4_____Barber
3.5_____State governor
3.6_____Soda fountain clerk
3.7_____Biologist
3.8_____Mail carrier
3.9_____Official of an international labor union
3.10_____Farm Hand

Question 4. Of the jobs listed in this question, which ONE would you choose if you were FREE TO CHOOSE ANY of them you wished when your SCHOOLING IS OVER?

4.1_____Psychologist
4.2_____Manager of a small store in a city
4.3_____Head of a department in state government
4.4_____Clerk in a store
4.5_____Cabinet member in the federal government
4.6_____Janitor
4.7_____Musician in a symphony orchestra
4.8_____Carpenter
4.9_____Radio announcer
4.10_____Coal miner

Question 5. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN HAVE by the time you are 30 YEARS OLD?

5.1_____Civil engineer
5.2_____Bookkeeper
5.3_____Minister or Priest
5.4_____Streetcar motorman or city bus driver
5.5_____Diplomat in the United States Foreign Service
5.6_____Share cropper (one who owns no livestock or farm machinery, and does not manage the farm)
5.7_____Author of novels
5.8_____Plumber
5.9_____Newspaper columnist
5.10_____Taxi driver

Question 6. Of the jobs listed in this question, which ONE would you choose to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished?

6.1_____Airline pilot
6.2_____Insurance agent
6.3_____Architect
6.4_____Milk route man
6.5_____Mayor of a large city
6.6_____Garbage collector
6.7_____Captain in the army
6.8_____Garage mechanic
6.9_____Owner-operator of a printing shop
6.10_____Railroad section hand

Question 7. Of the jobs listed in this question, which is the BEST ONE you are REALLY SURE YOU CAN HAVE by the time you are 30 YEARS OLD?

7.1_____Artist who paints pictures that are exhibited in galleries
7.2_____Traveling salesman for a wholesale concern
7.3_____Chemist
7.4_____Truck driver
7.5_____College professor
7.6_____Street sweeper
7.7_____Building contractor
7.8_____Local official of a labor union
7.9_____Electrician
7.10_____Restaurant waiter

Question 8. Of the jobs listed in this question, which ONE would you choose to have when you are 30 YEARS OLD, if you were FREE TO HAVE ANY of them you wished?

8.1_____Owner of a factory that employs about 100 people
8.2_____Playground director
8.3_____Dentist
8.4_____Lumberjack
8.5_____Scientist
8.6_____Shoeshiner
8.7_____Public school teacher
8.8_____Owner-operator of a lunch stand
8.9_____Trained machinist
8.10_____Dock worker

Scoring Instructions

Occupational Aspiration Scale

All eight questions are scored the same.
There are ten alternatives for each question, and only one alternative may be checked.

The scores for each alternative are as follows:

Alternative	Score
1	7
2	4
3	8
4	2
5	9
6	0
7	6
8	3
9	5
10	1

The total score is the sum of the scores for each of the eight questions.

Normalized Data for O.A.S. Raw Scores

The normalized data for the O.A.S. scores were computed by the method given by Edwards.[1] The data entitled "observed Z" represents equivalent scores having a mean of zero and a standard deviation of 1.0. However, the form of the "observed Z" distribution is the same as that for the raw scores. The cumulative frequencies below a given raw score plus one-half of the frequencies of that score were converted to cumulative percentages (or proportions of total N). These cumulative percentages were used to find the Z score value corresponding to the point in a theoretical normal distribution by referring to a table of the unit normal curve. These normalized Z scores also have a mean of zero and a standard deviation of 1.0; however, the scores have been stretched in such a way as to normalize the distribution. Also, the cumulative percentages were converted to equivalent T-scores by means of a table of T-scores. Essentially, a T-score equals a normal Z score multiplied by 10 and the product added to 50. Hence, the T-scores have a mean of 50 and a standard deviation of 10.0. Standard scores enable us to compare measurements from various distributions of comparable form since we have reduced the measurements of each distribution to a common scale.

Raw Scores: Mean = 36.2
S.D. = 12.99
T-Scores: Mean = 50.0
S.D. = 10.0
N = 442

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[1] Edwards, A. L., Statistical Methods for the Behavioral Sciences (New York; Rinehard and Company, Inc.: 1954)

	Raw score	f	Observed Z	cf	cp	Normal Z	T-scores
(1)	2	1	-2.63	0.5	.0011	-3.07	20
(2)	10	2	-2.02	2.0	.0045	-2.61	23
(3)	13	3	-1.79	4.5	.0102	-2.32	27
(4)	14	2	-1.71	7.0	.0159	-2.15	28
(5)	16	6	-1.56	11.0	.0250	-1.96	30
(6)	17	8	-1.48	18.0	.0409	-1.74	33
(7)	18	3	-1.40	23.5	.0533	-1.61	34
(8)	19	7	-1.32	28.5	.0647	-1.52	35
(9)	20	8	-1.25	36.0	.0817	-1.39	36
(10)	21	11	-1.17	45.5	.1033	-1.26	38
(11)	22	8	-1.09	55.0	.1248	-1.15	38
(12)	23	15	-1.02	66.5	.1510	-1.03	40
(13)	24	12	-0.94	80.0	.1816	-0.91	41
(14)	25	12	-0.86	92.0	.2088	-0.81	42
(15)	26	10	-0.78	103.0	.2338	-0.73	43
(16)	27	15	-0.71	115.5	.2622	-0.64	44
(17)	28	13	-0.63	129.5	.2940	-0.54	45
(18)	29	22	-0.55	147.0	.3337	-0.43	46
(19)	30	17	-0.48	166.5	.3780	-0.31	47
(20)	31	13	-0.40	181.5	.4120	-0.22	48
(21)	32	10	-0.32	193.0	.4381	-0.16	48
(22)	33	8	-0.25	202.0	.4585	-0.10	49
(23)	34	11	-0.17	211.5	.4801	-0.05	50
(24)	35	16	-0.09	225.0	.5108	0.03	50
(25)	36	8	-0.02	237.0	.5380	0.10	51
(26)	37	12	0.06	247.0	.5607	0.15	52
(27)	38	8	0.14	257.0	.5834	0.21	52
(28)	39	9	0.22	265.5	.6027	0.26	53
(29)	40	13	0.29	276.5	.6276	0.33	53
(30)	41	10	0.37	288.0	.6538	0.40	54
(31)	42	8	0.45	297.0	.6742	0.45	55
(32)	43	9	0.52	305.5	.6985	0.51	55
(33)	44	13	0.60	316.5	.7184	0.58	56
(34)	45	5	0.68	325.5	.7389	0.64	56
(35)	46	7	0.75	331.5	.7525	0.68	57
(36)	47	9	0.83	339.5	.7707	0.74	57
(37)	48	10	0.91	349.5	.7934	0.82	58
(38)	49	8	0.99	358.0	.8127	0.89	59
(39)	50	4	1.06	364.0	.8263	0.94	59
(40)	51	11	1.14	371.5	.8433	1.01	60
(41)	52	9	1.22	381.5	.8660	1.11	61
(42)	53	4	1.29	388.0	.8808	1.18	62
(43)	54	5	1.37	392.5	.8910	1.23	62
(44)	55	5	1.45	397.5	.9023	1.29	63
(45)	56	8	1.52	404.0	.9171	1.39	64
(46)	57	9	1.60	412.5	.9364	1.53	65
(47)	58	4	1.68	419.0	.9511	1.66	67
(48)	59	3	1.76	422.5	.9591	1.74	67
(49)	60	7	1.83	427.5	.9704	1.89	69
(50)	61	5	1.91	433.5	.9840	2.15	71
(51)	62	1	1.99	436.5	.9908	2.36	74
(52)	63	1	2.06	437.5	.9931	2.46	75
(53)	64	2	2.14	439.0	.9965	2.70	78
(54)	65	1	2.22	440.5	.9999	3.70	80

Correlation coefficients, means and standard deviations for OAS total score and 33 personal, social-situational and performance variables

(Lenawee county sample, N = 433)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	..	64	45	13	38	19	02	10	26	24	-03	-07	-08	16	-07	07	14	16
2		..	41	11	34	14	11	05	24	29	-06	-02	-12	17	-10	09	15	15
3			..	02	35	10	07	08	15	12	-10	-09	-13	12	-06	-06	11	11
4				..	-01	-05	03	10	11	14	-02	03	-01	02	08	-03	04	-01
5					..	10	-04	17	26	10	-11	-02	-13	21	-05	04	04	06
6						..	-03	-09	03	19	-07	-17	-13	04	27	-06	03	28
7							..	15	-03	12	03	03	06	12	-25	-05	02	-06
8								..	03	06	-01	15	-02	06	08	02	-02	-12
9									..	31	-07	12	-20	16	-14	01	10	25
10										..	-12	-05	-08	17	-34	00	-01	33
11											..	05	16	-11	14	07	05	-18
12												..	02	07	20	09	12	-05
13													..	-11	01	06	01	-18
14														..	-11	04	06	10
15															..	-00	00	-40
16																..	06	00
17																	..	04
18																		..

	19	20	21	22	23	24	25	26	27	28	29	30	32	33	34	35	Mean	SD
1	-11	28	03	11	20	06	28	21	-07	29	44	22	-07	37	50	-30	36.2	12.99
2	-11	27	04	07	22	07	28	24	01	35	48	29	-13	41	53	-19	2.2	2.48
3	-09	19	05	02	17	22	30	13	-08	21	27	16	-05	23	49	-23	20.6	5.02
4	07	-01	-00	01	06	-05	-04	-02	-03	10	08	12	06	11	01	-10	8.4	3.31
5	-09	19	04	08	12	17	25	12	-01	13	14	09	-13	15	35	-18	7.5	1.96
6	-44	38	12	10	-06	06	12	23	02	05	05	02	-07	11	17	-10	14.8	3.96
7	05	-08	01	-08	14	-03	04	-03	07	05	07	07	-07	05	-02	-04	10.5	4.18
8	25	-08	-12	-05	18	18	11	-08	-09	-01	05	11	04	01	03	-11	14.4	3.93
9	-11	36	18	25	-01	09	26	25	06	09	25	14	-03	12	26	-07	12.5	2.20
10	-29	50	17	15	03	08	23	20	21	12	23	11	-11	18	14	01	15.4	4.82
11	21	-26	-13	-14	-04	-15	-26	-13	-05	-05	01	00	-00	-04	-15	-10	8.2	3.19
12	19	-18	-06	-05	10	-01	04	-08	-07	02	-04	02	12	-04	-01	06	10.6	2.56
13	16	-24	-11	-13	06	-12	-14	-26	03	-01	-12	-09	03	-04	-12	01	10.2	3.40
14	-03	09	04	08	03	08	14	08	02	15	17	05	01	17	08	02	11.1	2.85
15	42	-45	-12	-09	-01	-08	-23	-15	-16	-05	-16	00	16	-04	-11	-01	11.5	5.04
16	07	-02	-08	04	08	00	03	04	04	06	-01	04	-00	07	00	-03	9.9	2.86
17	-01	-04	02	-03	17	03	09	08	01	04	08	07	04	06	14	-07	9.4	3.03
18	-46	47	19	27	-03	14	20	27	10	03	06	00	-10	10	13	00	12.2	3.54
19	..	-51	-11	-16	02	-13	-23	-28	-10	-07	-07	-03	13	-12	19	-08	10.7	4.65
20		..	28	30	-09	19	37	37	18	09	27	11	-24	19	34	06	132.8	25.49
21			..	22	-13	09	20	13	06	06	15	09	-06	06	11	04	6.6	1.20
22				..	-13	09	16	33	06	05	14	09	-05	09	10	04	5.6	1.66
23					..	10	17	-01	00	11	09	-01	04	07	16	-22	3.2	1.04
24						..	20	13	-02	04	03	00	-06	-02	16	03	6.3	0.94
25							..	20	16	17	18	12	-14	21	34	-06	5.9	1.49
26								..	13	12	18	11	-09	18	22	-02	5.5	1.03
27									..	-02	00	12	-06	01	04	02	2.0	0.78
28										..	30	09	-22	65	19	-06	2.3	1.29
29											..	37	-08	39	28	-10	6.4	1.72
30												..	07	09	06	-05	4.7	2.32
32													..	-23	-13	-02	3.0	1.61
33														..	22	-05	87.2	6.29
34															..	-13	2.0	0.83
35																..	1.2	2.26

NOTE: These variables are described by variable number in the variable identification form following this table. Two variables on the identification form do not appear on the Table. These are variable numbers 31 and 36. Number 31 was omitted because it is redundant, being the sum of variables 29 and 30. Variable 36 was omitted because data on it were available for a sample of only 107.

Variable Identification for Correlation Matrix[2]

Matrix Identification	Description
1	Occupational Aspiration Scale Scores
2	College Aspiration Level
3	C. F. I. Q. Scores
4	16 Personality Factor Test: Factor "A" (Cyclothymia vs. Schizothymia)[3]
5	16 PF: Factor "B" (General Intelligence vs. Mental Defect)
6	16 PF: Factor "C" (Emotional stability or ego strength vs. dissatisfied emotionality)
7	16 PF: Factor "E" (Dominance or Ascendance vs. Submission)
8	16 PF: Factor "F" (Surgency vs. desurgency, or depressive anxiety)
9	16 PF: Factor "G" (Character or super-ego strength vs. lack of internal standards)
10	16 PF: Factor "H" (Adventurous Autonomic resilience vs. inherent, withdrawn schizothymia)
11	16 PF: Factor "I" (Emotional sensitivity vs. tough maturity)
12	16 PF: Factor "L" (Paranoid schizothymia vs. trustful altruism)
13	16 PF: Factor "M" (Hysterical unconcern or "bohemianism", vs. practical concernedness)
14	16 PF: Factor "N" (Sophistication vs. rough simplicity)
15	16 PF: Factor "O" (Anxious insecurity vs. placid self-confidence)
16	16 PF: Factor "Q_1" (Radicalism vs. Conservativism)
17	16 PF: Factor "Q_2" (Independent self-sufficiency vs. lack of resolution)
18	16 PF: Factor "Q_3" (Will control and character stability)
19	16 PF: Factor "Q_4" (Nervous tension)
20	CTP: Total Adjustment Score

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[2] Based on coding key for card 1.14.

[3] First characteristic refers to high score.

Matrix Identification	Description
21	BVA 1 (Belief that work is of expressive value vs. instrumental value)[4]
22	BVA 2 (Positive vs. negative evaluation of structured time)
23	BVA 3 (Positive vs. negative evaluation of physical mobility)
24	BVA 4 (Positive vs. negative evaluation of change)
25	BVA 5 (Belief in internal vs. external determination of events)
26	BVA 6 (Positive vs. negative evaluation of deferred gratification)
27	Occupational Crystallization (Certainty of occupational choice)
28	Father's educational status
29	Parental desire for ego's post-high school educational mobility
30	Parental desire for ego's high occupational achievement
31	Parental desire for ego's high social status (Index based on no.'s 29 and 30 above)
32	Status Anxiety
33	Sewell S.E.S. scores
34	Grade Point Average: 1956-1957
35	Number of agricultural courses through 1957
36	Agricultural GPA through 1957

Means and standard deviations for the North-Hatt LOA instrument

Variable	Mean	SD	N
X_1 Highest.........	79.61	7.14	437
X_2 Lowest..........	64.25	9.84	437
X_3 Plan............	72.86	9.48	411
X_4 Free............	74.50	9.63	406
X_5 Mature..........	74.35	9.00	392

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[4] First characteristic refers to high score.

APPENDIX II

UNPUBLISHED QUESTIONNAIRES USED IN THE LENAWEE COUNTY STUDY

YOUR NAME ______________________________

The MSU Work Beliefs Check-List

Instructions:

This check-list is made up of statements people often say they believe. You will probably find that you agree with some and disagree with others. If you agree with a statement, circle Agree; if you disagree with a statement, circle Disagree. Do not omit any.

Be sure your name is on the top of this sheet.

1.1 The only purpose of working is to make money. Agree Disagree

1.2 I believe a man needs to work in order to feel that he has a real place in the world. Agree Disagree

1.3 I feel sorry for people whose jobs require that they take orders from others. Agree Disagree

1.4 Every man should have a job that gives him a steady income. Agree Disagree

1.5 The happiest men are those who work only when they need money. Agree Disagree

1.6 Doing a good job day in and day out is one of the most satisfying experiences a man can have. Agree Disagree

1.7 A regular job is good for one. Agree Disagree

1.8 I feel sorry for rich people who never learn how good it is to have a steady job. Agree Disagree

2.1 I don't like people who are always right on time for every appointment they have. Agree Disagree

2.2 I feel sorry for people who have to do the same thing every day at the same time. Agree Disagree

2.3 I don't like to have to make appointments. Agree Disagree

2.4 I believe that promptness is a virtue. Agree Disagree

2.5 I usually schedule my activities. Agree Disagree

2.6 I'd rather let things happen in their own way rather than scheduling them by a clock. Agree Disagree

2.7 It makes me feel bad to be late for an appointment. Agree Disagree

2.8 I expect people who have appointments with me to be right on time. Agree Disagree

3.1 I would be unhappy living away from my relatives. Agree Disagree

3.2 I hope to move away from here within the next few years. Agree Disagree

3.3 People who can't leave their hometowns are hard for me to understand. Agree Disagree

3.4 A man's first loyalty should be to his home community. Agree Disagree

3.5 When a boy becomes a man, he should leave home. Agree Disagree

3.6 I like to see new things and meet new people. Agree Disagree

4.1 I like to try new things. Agree Disagree

4.2 On the whole, the old ways of doing things are the best. Agree Disagree

4.3 Life would be boring without new experiences. Agree Disagree

4.4 I like people who are willing to change. Agree Disagree

4.5 On the whole, most changes make things worse. Agree Disagree

4.6 The happiest people are those who do things the way their parents did. Agree Disagree

4.7 New things are usually better than old things. Agree Disagree

5.1 I believe that a person can get anything he wants if he's willing to work for it. Agree Disagree

5.2 Man should not work too hard, for his fortune is in the hands of God. Agree Disagree

5.3 A man shouldn't work too hard because it won't do him any good unless luck is with him. Agree Disagree

5.4 With a little luck I believe I can do almost anything I really want to do. Agree Disagree

5.5 A person shouldn't hope for much in this life. Agree Disagree

5.6 If a man can't better himself it's his own fault. Agree Disagree

5.7 Practically everything I try to do turns out well for me. Agree Disagree

5.8 I usually fail when I try something important. Agree Disagree

6.1 I would rather work than go to school. Agree Disagree

6.2 Money is made to spend, not to save. Agree Disagree

6.3 I think there's something wrong with people who go to school for years when they could be out earning a living. Agree Disagree

6.4 One gains more in the long run if he studies than if he gets a job. Agree Disagree

6.5 The more school a person gets the better off he is. Agree Disagree

6.6 Generally speaking, things one works hard for are the best. Agree Disagree

6.7 When I get a little extra money I usually spend it. Agree Disagree

Scoring Key (Tentative) 1957-1960

MSU Work Beliefs Check-List

1. Underlined responses are scored *one point*; all others are scored *zero* points.
2. There is a score for each sub-area, six scores in all.

1.1 The only purpose of working is to make money. Agree [✓ Disagree]

1.2 I believe a man needs to work in order to feel that he has a real place in the world. [✓ Agree] Disagree

1.3 I feel sorry for people whose jobs require that they take orders from others. Agree [✓ Disagree]

1.4 Every man should have a job that gives him a steady income. [✓ Agree] Disagree

1.5 The happiest men are those who work only when they need money. Agree [✓ Disagree]

1.6 Doing a good job day in and day out is one of the most satisfying experiences a man can have. [✓ Agree] Disagree

1.7 A regular job is good for one. [✓ Agree] Disagree

1.8 I feel sorry for rich people who never learn how good it is to have a steady job. [✓ Agree] Disagree

2.1 I don't like people who are always right on time for every appointment they have. Agree [✓ Disagree]

2.2 I feel sorry for people who have to do the same thing every day at the same time. Agree [✓ Disagree]

2.3 I don't like to have to make appointments. Agree [✓ Disagree]

2.4 I believe that promptness is a virtue. [✓ Agree] Disagree

2.5 I usually schedule my activities. [✓ Agree] Disagree

2.6 I'd rather let things happen in their own way rather than scheduling them by a clock. Agree [✓ Disagree]

2.7 It makes me feel bad to be late for an appointment. [✓ Agree] Disagree

2.8 I expect people who have appointments with me to be right on time. [✓ Agree] Disagree

3.1 I would be unhappy living away from my relatives. Agree [✓ Disagree]

3.2 I hope to move away from here within the next few years. [✓ Agree] Disagree

3.3 People who can't leave their hometowns are hard for me to understand. [✓ Agree] Disagree

3.4 A man's first loyalty should be to his home community. Agree [✓ Disagree]

3.5 When a boy becomes a man, he should leave home. [✓ Agree] Disagree

3.6 I like to see new things and meet new people. [✓ Agree] Disagree

4.1 I like to try new things. [✓ Agree] Disagree

4.2 On the whole, the old ways of doing things are the best. Agree [✓ Disagree]

4.3 Life would be boring without new experiences. [✓ Agree] Disagree

4.4	I like people who are willing to change.	[✓ Agree]	Disagree
4.5	On the whole, most changes make things worse.	Agree	[✓ Disagree]
4.6	The happiest people are those who do things the way their parents did.	Agree	[✓ Disagree]
4.7	New things are usually better than old things.	[✓ Agree]	Disagree
5.1	I believe that a person can get anything he wants if he's willing to work for it.	[✓ Agree]	Disagree
5.2	Man should not work too hard, for his fortune is in the hands of God.	Agree	[✓ Disagree]
5.3	A man shouldn't work too hard because it won't do him any good unless luck is with him.	Agree	[✓ Disagree]
5.4	With a little luck I believe I can do almost anything I really want to do.	Agree	Disagree
5.5	A person shouldn't hope for much in this life.	Agree	[✓ Disagree]
5.6	If a man can't better himself it's his own fault.	[✓ Agree]	Disagree
5.7	Practically everything I try to do turns out well for me.	[✓ Agree]	Disagree
5.8	I usually fail when I try something important.	Agree	[✓ Disagree]
6.1	I would rather work than go to school.	Agree	[✓ Disagree]
6.2	Money is made to spend, not to save.	Agree	[✓ Disagree]
6.3	I think there's something wrong with people who go to school for years when they could be out earning a living.	Agree	[✓ Disagree]
6.4	One gains more in the long run if he studies than if he gets a job.	[✓ Agree]	Disagree
6.5	The more school a person gets the better off he is.	[✓ Agree]	Disagree
6.6	Generally speaking, things one works hard for are the best.	[✓ Agree]	Disagree
6.7	When I get a little extra money I usually spend it.	Agree	[✓ Disagree]

Michigan State University
Department of Sociology
and Anthropology

THE OCCUPATIONAL PLANS OF MICHIGAN YOUTH

Dear Student:

This survey is an attempt to get a better picture of the problems you young people face in choosing your life's occupation, and the attitudes you have towards these problems. By carefully filling out this questionnaire you will help us to gain a better understanding of how these problems look from where you stand. This information will be of great value in developing counseling programs for high school youth. For this reason we are anxious to have you answer the questions on this form to the best of your ability.

PLEASE FOLLOW THE DIRECTIONS:

1. Read each item carefully. Answer to the best of your knowledge.
2. Be sure to answer each question. Where there are brackets, fill in an "X". Be sure that your "X" is squarely in the proper bracket before your choice. Where only a space is left, enter the word or figures called for. If you cannot answer the question, write "I do not know".
3. There are several questions which refer to your parents. If for any reason you are not living with your parents, answer for the person who acts as your parent or guardian.
4. If you have any comment to make, if you did not understand any item, if your attitudes differ from those given, or if you have problems which we failed to mention, write about them on the margin close to the items near them in meaning.

I. ABOUT MYSELF

1. MY NAME IS: ______________________________.

2. MY ADDRESS IS: ____.

3. MY AGE (to nearest birthday) IS: _____.

THE DATE OF MY BIRTH WAS: __________ ______ ______.
Month Day Year

4. MY SEX IS: ( ) male ( ) female

5. I AM A: ( ) junior ( ) senior

6. I MAKE MY REGULAR HOME WITH:

- ( ) my own parents.
- ( ) a parent and a step-parent.
- ( ) one parent only.
- ( ) my grandparents.
- ( ) an uncle or aunt.
- ( ) other (specify) ________________________

7. MY CHURCH PREFERENCE IS: ____.

Member: ( ) yes ( ) no

8. THE NAME OF MY HIGH SCHOOL IS: ______________________________.

9. THE NUMBER OF YEARS I HAVE ATTENDED THIS HIGH SCHOOL IS: __________.

10. THE KINDS OF EXTRA CURRICULAR ACTIVITIES IN WHICH I PARTICIPATE ARE:

(Check the ones in which you participate regularly, and add to the list if necessary.)

( ) athletics.
( ) band-orchestra.
( ) chorus-vocal.
( ) dramatics.
( ) debates.
( ) 4-H or FFA.
( ) school paper.
( ) annual.
( ) student government.
( ) hobby club.
( ) other ____.
( ) ____.
( ) ____.
( ) ____.

11. COMPARED TO MOST STUDENTS IN MY HIGH SCHOOL, MY LEADERSHIP ACTIVITIES ARE:

( ) greater than average.
( ) about average.
( ) less than average.

12. I LIVE:

( ) on a farm.
( ) in the open country but not on a farm.
( ) in a village under 2,500.
( ) in a town of 2,500-10,000.
( ) in a city over 10,000.

13. AS TO WORKING WHILE I AM IN HIGH SCHOOL:

( ) I have a fairly regular job outside my family and home.
( ) I sometimes work outside my family and home.
( ) I do not work outside my family and home.

14. OF ALL THE MEN I KNOW WELL, THE ONES I ADMIRE MOST ARE:

Their names	Their exact occupations (their job titles, not the company they work for)	Their relationship to me (friend, relative, teacher, minister, etc.)
1.		
2.		
3.		
4.		
5.		

15. THE NAMES OF MY BEST FRIENDS ARE:

1. ____
2. ____
3. ____
4. ____
5. ____

II. ABOUT MY CHOICE OF A LIFE'S OCCUPATION

1. THE OCCUPATIONS WHICH I HAVE THOUGHT ABOUT GOING INTO ARE:

   1.________________________ 2.____________________

   3.________________________ 4.____________________

2. THE OCCUPATION THAT I PLAN TO FOLLOW IS: ____________________
   (Indicate particular type of job.)

3. IN REGARD TO MY CHOICE OF MY OCCUPATION:
   ( ) I feel sure that my mind is made up.
   ( ) I'm not too sure, but I think my mind is made up.
   ( ) I'm not sure that my mind is made up.

4. IN REGARD TO MY CHOICE OF AN OCCUPATION:

   ( ) I have given the matter a great deal of thought.
   ( ) I have given the matter some thought.
   ( ) I have given the matter little thought.

5. AS TO MY KNOWLEDGE OF THE WORK I INTEND TO ENTER:

   ( ) I have good knowledge because I have worked at it.
   ( ) I have good knowledge because I have relatives or friends who work at it.
   ( ) I have a general knowledge, but don't know much about the details of it.
   ( ) I don't know much about it yet, but will find out by experience on the job.
   ( ) I don't know much about it yet, but will find out when I go on to school.
   ( ) I don't know because I have not yet made a choice.

6. FOR THE OCCUPATION I HAVE CHOSEN I THINK MY ABILITY IS:
   ( ) very much above average.
   ( ) somewhat above average.
   ( ) just average.
   ( ) somewhat below average.
   ( ) very much below average.
   ( ) I don't know because I have not yet made a choice.

7. COMPARED WITH MY FRIENDS, I THINK MY CHANCES FOR GETTING AHEAD IN THE OCCUPATION OF MY CHOICE ARE:

   ( ) very much above average.
   ( ) somewhat above average.
   ( ) just average.
   ( ) somewhat below average.
   ( ) very much below average.

8. IN THE OCCUPATION I HAVE CHOSEN I CAN EXPECT HELP IN GETTING STARTED:

   ( ) from my father or mother who is in this type of work.
   ( ) from relatives who are in this type of work.
   ( ) from friends who are in this type of work.
   ( ) from no one.
   ( ) I don't know because I have not made my choice yet.

9. AS TO FOLLOWING HIS OCCUPATION (FOR BOYS ONLY), MY FATHER HAS:

   ( ) tried to encourage me.
   ( ) neither tried to encourage or discourage me.
   ( ) tried to discourage me.

10. IN THIS QUESTION EACH LINE PRESENTS TWO FACTS PEOPLE CONSIDER WHEN THEY CHOOSE A JOB. YOU ARE TO UNDERLINE THE FACT YOU BELIEVE TO BE THE MORE IMPORTANT OF THE TWO IN CHOOSING YOUR JOB.

    1. Fact 1: The money you can make.
       Fact 2: The difficulty in getting the required education.
    2. Fact 1: The working hours.
       Fact 2: The social standing of the occupation.
    3. Fact 1: The good you can do.
       Fact 2: The difficulty in getting the required education.
    4. Fact 1: The good you can do.
       Fact 2: The social standing of the occupation.
    5. Fact 1: The working hours.
       Fact 2: The money you can make.
    6. Fact 1: The money you can make.
       Fact 2: The good you can do.
    7. Fact 1: The social standing of the occupation.
       Fact 2: The money you can make.
    8. Fact 1: The good you can do.
       Fact 2: The working hours.
    9. Fact 1: The working hours.
       Fact 2: The difficulty in getting the required education.
    10. Fact 1: The difficulty in getting the required education.
        Fact 2: The social standing of the occupation.

11. IF I WERE ABSOLUTELY FREE TO GO INTO ANY KIND OF WORK I WANTED, MY CHOICE WOULD BE: ______________________________.

12. THE TYPE OF WORK I WOULD LIKE TO BE DOING WHEN I AM 30 YEARS OLD IS:
    ____.

13. REGARDING MY PLANS FOR EDUCATION AFTER I LEAVE HIGH SCHOOL:

    ( ) I plan to get more education after high school.
    ( ) I do not plan to get more education after high school.

IF PLANNING TO GET MORE EDUCATION:

1. THE NUMBER OF YEARS OF FURTHER EDUCATION I PLAN TO GET IS:

   ( ) two years or less.
   ( ) three or four years.
   ( ) five or six years.
   ( ) seven or more years.

2. THE NAMES AND LOCATIONS OF THE SCHOOLS I AM THINKING ABOUT ATTENDING ARE:

	Name of School	Location of School
(1)	____________________	____________________
(2)	____________________	____________________
(3)	____________________	____________________

3. THE COURSES OF STUDY I AM THINKING ABOUT TAKING ARE:

(1)____________________

(2)____________________

(3)____________________

4. AS FAR AS I KNOW NOW, THE HIGHEST DEGREE I HOPE TO EARN IS:

( ) none.
( ) bachelor's degree.
( ) master's degree.
( ) doctor's degree.
( ) other degree.

IF OTHER DEGREE

THE DEGREE I HOPE TO GET IS:

____

III. ABOUT MY PARENTS

1. MY PARENTS ARE:

( ) both living together.
( ) both dead.
( ) father is dead.
( ) mother is dead.
( ) divorced.
( ) separated.

1A. MY FATHER'S FULL NAME IS:

____

1B. MY MOTHER'S FULL NAME IS:

____

2. MY MOTHER:

( ) has no job outside the home.
( ) has a part-time job outside the home.
( ) has a full-time job outside the home.

3. MY FATHER'S OCCUPATION IS: (or was, if dead or retired) (Specify the kind of work he does and not where he works.) ____________________

____

IF FATHER IS A FARMER

MY FATHER IS: ( ) owner ( ) renter ( ) laborer

THE NUMBER OF ACRES MY FATHER OPERATES IS: ____________.

4. MY FATHER CONSIDERS HIS OCCUPATION TO BE:

( ) completely satisfactory.
( ) fairly satisfactory.
( ) good enough.
( ) not very good.
( ) very poor.

5. MY MOTHER CONSIDERS MY FATHER'S OCCUPATION TO BE:

( ) completely satisfactory.
( ) fairly satisfactory.
( ) good enough.
( ) not very good.
( ) very poor.

6. THE OCCUPATION OF MY FATHER'S FATHER WAS: ______________.

7. THE OCCUPATION OF MY MOTHER'S FATHER WAS: ______________.

8. THE COUNTRY OF BIRTH OF MY FATHER WAS: ______________.

9. THE COUNTRY OF BIRTH OF MY MOTHER WAS: ______________.

10. THE COUNTRY OF BIRTH OF MY FATHER'S FATHER WAS: ______________.

11. THE COUNTRY OF BIRTH OF MY MOTHER'S FATHER WAS: ______________.

12. MY FATHER'S EDUCATION CONSISTED OF:

( ) less than 8 grades.
( ) 8 grades.
( ) 9-11 grades.
( ) 12 grades.
( ) some college.
( ) college degree.

13. MY MOTHER'S EDUCATION CONSISTED OF:

( ) less than 8 grades.
( ) 8 grades.
( ) 9-11 grades.
( ) 12 grades.
( ) some college.
( ) college degree.

14. I BELIEVE MY FATHER'S EDUCATION IS:

( ) completely satisfactory.
( ) fairly satisfactory.
( ) good enough.
( ) not very good.
( ) very poor.

15. MY FATHER THINKS THAT THE EDUCATION HE OBTAINED IS:

( ) completely satisfactory.
( ) fairly satisfactory.
( ) good enough.
( ) not very good.
( ) very poor.

16. IN COMPARISON TO THE INCOME OF THE PARENTS OF OTHER STUDENTS IN THE HIGH SCHOOL, THE INCOME OF MY PARENTS IS:

( ) one of the highest incomes.
( ) higher than average.
( ) just average.
( ) less than average.
( ) one of the lowest incomes.

17. MY PARENTS ARE CONSIDERED BY MOST PEOPLE IN THE COMMUNITY TO BE:

( ) very important people.
( ) rather important people.
( ) just average people.
( ) of less than average importance.
( ) not at all important.

IV. ABOUT ME AND MY PARENTS

1. AS TO CONTINUING MY EDUCATION BEYOND HIGH SCHOOL, MY FATHER:

( ) has strongly encouraged me to continue.
( ) has given me some encouragement to continue.
( ) has never said much about it.
( ) he feels that I would be better off going to work after high school.
( ) feels that I should quit high school and go to work.

2. AS TO CONTINUING MY EDUCATION BEYOND HIGH SCHOOL, MY MOTHER:

( ) has strongly encouraged me to continue.
( ) has given me some encouragement to continue.
( ) has never said much about it.
( ) feels that I would be better off going to work after high school.
( ) feels that I should quit high school and go to work.

3. AS TO ANY FURTHER HELP FROM MY FOLKS IN GETTING A START OR IN CONTINUING MY SCHOOLING AFTER HIGH SCHOOL, MY PARENTS WOULD BE:

( ) financially able to help me a great deal.
( ) financially able to give me some help.
( ) financially able to give me no help.

4. AS TO FURTHER HELP FROM MY PARENTS AFTER I FINISH HIGH SCHOOL, MY PARENTS WOULD BE:

( ) willing to help me a great deal.
( ) willing to give me some help.
( ) willing to give me no help.

5. AS TO THE KIND OF JOB I GO INTO, MY FATHER:

( ) wants me to have a very important job.
( ) wants me to have a job that is quite a bit better than most jobs around here.
( ) wants me to have a job that is a little bit better than most jobs around here.
( ) feels that the job I take should be as good as most jobs around here.
( ) does not care how good the job I go into is.

6. AS TO THE KIND OF JOB I GO INTO, MY MOTHER:

( ) wants me to have a very important job.
( ) wants me to have a job that is quite a bit better than most jobs around here.
( ) wants me to have a job that is a little bit better than most jobs around here.
( ) feels that the job I take should be as good as most jobs around here.
( ) does not care how good the job I go into is.

7. MY FAMILY IS TOO POOR TO BUY ME THE KIND OF THINGS I NEED:

( ) Yes ( ) No

8. THE GIRLS I WOULD LIKE TO DATE PREFER TO GO OUT WITH BOYS WHOSE FAMILIES ARE MORE IMPORTANT THAN MINE:

( ) Yes ( ) No

9. I OFTEN WISH MY FATHER (OR MOTHER, OR GUARDIAN) HAD A BETTER JOB:

( ) Yes ( ) No

10. I OFTEN WISH MY FATHER WAS A MORE IMPORTANT MAN IN THE COMMUNITY THAN HE IS:

( ) Yes ( ) No

V. ABOUT MY BROTHERS AND SISTERS

(Write "0" if your answer is "none")

1. THE NUMBER OF OLDER BROTHERS I HAVE IS: ____________.
2. THE NUMBER OF YOUNGER BROTHERS I HAVE IS: ____________.
3. THE NUMBER OF OLDER SISTERS I HAVE IS: ____________.
4. THE NUMBER OF YOUNGER SISTERS I HAVE IS: ____________.
5. THE NUMBER OF MY OLDER BROTHERS AND SISTERS THAT GRADUATED FROM HIGH SCHOOL IS: ____________.
6. THE NUMBER THAT QUIT SCHOOL BEFORE GRADUATING FROM HIGH SCHOOL IS: ______.
7. THE NUMBER THAT HAVE ATTENDED OR ARE ATTENDING COLLEGE IS: ________.
8. BELOW IS THE NAME, SEX, AGE, OCCUPATION AND PLACE OF RESIDENCE OF EACH OF MY BROTHERS AND SISTERS: (Start with the oldest brother or sister and include all brothers and sisters. If in school, put "student". If sister is married and not working outside the home, put "housewife".)

Name	Male or Female	Age	Occupation	Place of Residence (town and state)
1.				
2.				
3.				
4.				
5.				
6.				

IF YOU HAVE A BROTHER OR SISTER (or more)--

9. COMPARED TO MOST OF MY BROTHERS AND SISTERS, I BELIEVE MY FATHER WAS:

( ) much more interested in what I did.
( ) a little more interested in what I did.
( ) just about equally interested in what each of us did.
( ) a little less interested in what I did.
( ) much less interested in what I did.

10. COMPARED TO MOST OF MY BROTHERS AND SISTERS, I BELIEVE MY MOTHER WAS:

( ) much more interested in what I did.
( ) a little more interested in what I did.
( ) just about equally interested in what each of us did.
( ) a little less interested in what I did.
( ) much less interested in what I did.

11. COMPARED TO MOST OF MY BROTHERS AND SISTERS, I BELIEVE MY FATHER WAS:

( ) much kinder to me.
( ) a little kinder to me.
( ) about equally kind to each of us.
( ) a little less kind to me.
( ) much less kind to me.

12. COMPARED TO MOST OF MY BROTHERS AND SISTERS, I BELIEVE MY MOTHER WAS:

( ) much kinder to me.
( ) a little kinder to me.
( ) about equally kind to each of us.
( ) a little less kind to me.
( ) much less kind to me.

13. COMPARED TO MOST OF MY BROTHERS AND SISTERS, I BELIEVE MY FATHER WAS:

( ) much more attentive to me.
( ) a little more attentive to me.
( ) about equally attentive to each of us.
( ) a little less attentive to me.
( ) much less attentive to me.

14. COMPARED TO MOST OF MY BROTHERS AND SISTERS, I BELIEVE MY MOTHER WAS:

( ) much more attentive to me.
( ) a little more attentive to me.
( ) about equally attentive to each of us.
( ) a little less attentive to me.
( ) much less attentive to me.

15. USUALLY I WAS:

( ) much more interested in most of my brothers and sisters than they were in me.
( ) a little more interested in most of my brothers and sisters than they were in me.
( ) about as interested in my brothers and sisters as they were in me.
( ) a little less interested in most of my brothers and sisters than they were in me.
( ) much less interested in most of my brothers and sisters than they were in me.

VI. ABOUT MY HOUSE

1. OUR HOME IS: ( ) owned ( ) rented.

2. THE NUMBER OF PERSONS WHO LIVE AT OUR HOUSE IS: _________.

3. THE NUMBER OF ROOMS IN OUR HOUSE IS: ________.
(Do not include basements, bathrooms, porches, closets, halls.)

4. THE CONSTRUCTION OF OUR HOUSE IS:

( ) brick.
( ) unpainted frame.
( ) painted frame.
( ) other (specify) ____________________________

5. THE LIGHTING IN OUR HOUSE IS:

   ( ) oil lamps.
   ( ) electric.
   ( ) gas, mantle, or pressure lamps.
   ( ) other or none.

6. THE KIND OF REFRIGERATOR WE HAVE IS:

   ( ) ice.
   ( ) mechanical (gas or electric).
   ( ) other or none.

7. WE HAVE A DEEP FREEZE LOCKER AT OUR HOME:

   ( ) yes ( ) no.

8. WE HAVE RUNNING WATER IN OUR HOUSE: ( ) yes ( ) no

9. WE TAKE A DAILY NEWSPAPER: ( ) yes ( ) no.

10. WE HAVE A POWER WASHING MACHINE: ( ) yes ( ) no.

11. WE HAVE A RADIO: ( ) yes ( ) no.

12. WE HAVE A CAR (other than truck): ( ) yes ( ) no.

13. WE HAVE A TELEPHONE: ( ) yes ( ) no.

14. MY FATHER GOES TO CHURCH AT LEAST ONCE A MONTH: ( ) yes ( ) no.

15. MY MOTHER GOES TO CHURCH AT LEAST ONCE A MONTH: ( ) yes ( ) no.

(GO BACK AND CHECK TO SEE IF YOU HAVE ANSWERED EVERY QUESTION).

THANK YOU.